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The Sir Richard Stawell Oration.[1]

SERENDIPITY.

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LESS than half a mile from here the house still stands where my father spent his youth. It was a doctor's house, and I have a dim recollection of Frawley, the groom, harnessing the horse which was always put into the shafts ready for the night calls. My father was a hero-worshipper, and I like to remember that in this iconoclastic country he retained the quality of loyalty until he died at the age of ninety. His heroes were in the medical profession, and so it was that I grew up hearing firstly of his step-father, Dr. Thomas Hewlett, then of Sir Thomas Fitzgerald, Dr. Snowball, and many another. Sir Richard Stawell, until he died in 1935, was my father's physician, and thereafter Dr. Rowden White occupied in his mind the place of trust, of admiration, and of affection left vacant by Sir Richard. These men represented to my father almost the highest way of life of which he could conceive, and perhaps this is the reason why a Victorian father chose to have one of his sons a doctor. Certainly nothing would have pleased him more than that I should be privileged to give the Stawell Oration.

Four years ago I was browsing in the library of "The Vyne", an English country house in Hampshire. Horace Walpole spent many hours there, for he was an intimate friend of John Chute, the ancestor of Charles Chute in whose home I was a guest. Fond as I am of books I was not looking at them, but at a gold Roman ring unearthed in the eighteenth century in a field across the lake upon which I looked down from the library window. The ring bears the head of Venus, and is inscribed in Latin: *"Seneciane Vivas Inde"*—"O Senecianus, mayest thou live prosperously!" It was exhibited to the Society of Antiquaries in 1786, and so it is quite likely that Walpole knew the ring. By a strange chance over one hundred years later, seventy miles away at Lydney in Gloucestershire, some Roman remains were being excavated, and in the ruins of a temple to the God Nodeus a small leaden tablet was found advertising the loss of the ring. It is inscribed: "To the God Nodeus, Silvanus has lost a ring. He has vowed the half to Nodeus if he recovers it. Among those who bear the name of Senecianus to none grant health until he brings the ring to the Temple of Nodeus." How delighted Walpole would have been could he have known the second half of this story. Perhaps he would have

[1] Delivered at a meeting of the Victorian Branch of the British Medical Association at the Royal Australasian College of Surgeons on October 1, 1958, at Melbourne.

regarded it as an example of serendipity, a word which he coined, and which, after two hundred years of comparative obscurity, has been adopted into American scientific usage. On January 28, 1754, long before the ring was found, Walpole wrote one of his numerous letters to Horace Mann, and in it he says:

> I once read a silly fairy tale called The Three Princes of Serendip: As Their Highnesses travelled they were always making discoveries by accident and sagacity of things they were not in quest of: for instance one of them discovered that a mule blind of the right eye had travelled the same road lately, because the grass was eaten only on the left side, where it was worse than on the right—now do you understand Serendipity?

The Oxford Dictionary defines serendipity as the faculty of making happy and unexpected discoveries by accident. You will see from Walpole's letter that the definition has omitted sagacity, and is therefore inaccurate. My purpose is to discuss serendipity in science and medicine; to examine the part played by accident and by sagacity in the happy and unexpected discovery; and then to reflect on serendipity in the physician's life, and indeed to reflect on the physician's life now and in Sir Richard Stawell's day.

Pasteur, one of the immortals, made the observation that "in research chance only helps those whose minds are well prepared for it". Perhaps it is not so well known that Jane Austen wrote in "Emma": "Depend upon it a lucky guess is never merely luck—there is always some talent in it." How well prepared Pasteur was may be seen from the principal subjects he investigated — molecular asymmetry, fermentation, spontaneous generation, wine; diseases of silkworms; beer; bacterial disease; vaccines; the prophylaxis of rabies—a veritable organization for scientific and industrial research housed in one brain. At first sight it may appear that Pasteur, who was neither a doctor nor a biologist, could not apply himself to anything for any length of time and busied himself with a host of unrelated problems. Pasteur commented upon this himself, and then pointed out that behind these seemingly distinct and separate episodes in his life work everything was linked logically together, and almost inexorably one investigation led to another. His life is replete with examples of what might seem pure luck from the time when, at the age of twenty-two, he chanced to read a note by a German physicist on the curious difference in effect on polarized light of two apparently identical crystals, and so was led to the discovery of molecular asymmetry. For pure serendipity, the happy combination of accident and sagacity, there was the incident in 1879 when Pasteur returned from his holiday to find that Chamberland and Roux had forgotten to carry out his instructions to inoculate a fresh culture medium every day with chicken-cholera bacteria. Lacking a fresh culture, they had injected a culture of the bacteria several weeks old into a hen, and to their astonishment the hen survived. A few days later, inoculating the same hen with another culture only twenty-four hours old, they found the new injection equally well tolerated, although other hens inoculated with exactly the same culture succumbed. Chamberland and Roux were puzzled, and confessed the whole story, whereupon Pasteur grasped the fact that the injection with the old culture had protected the hen against the disease.

It is well known to all of us in our more humble professional lives that if one fails to make the right observation at the first opportunity one may never make it, though it becomes all too obvious when someone whose mind is better prepared points it out. I shall refer again to this quality of awareness, which was such a striking feature of Pasteur's life, and which was part of the chain that linked seemingly divergent periods of his life's work together. It was part of Pasteur's sagacity that he was constantly on the look-out for the unexpected, and aware always that what seemed merely an unimportant accident or a trivial incident might be pregnant with possibility. Sir Alexander Fleming's observation that led to the isolation of penicillin is an example in our own time of the application of sagacity to a happy accident, which must have gone uncomprehended hundreds of times before in laboratories all over the world. In this country we can point to Sir Norman Gregg's observations on congenital defects in infants whose mothers developed German measles in the early months of pregnancy, and to Dr. Kate Campbell's observation that retrolental fibroplasia, a disease resulting in blindness in premature infants, is associated with their exposure to too high a concentration of oxygen during the early weeks of life.

In 1876 it was widely believed that the natural remedy for each disease would be found where the disease was most prevalent. Rheumatic fever, for example, was found in damp low-lying country and so was the Salix, the willow tree. Salicin was therefore extracted from the willow tree for use in rheumatic fever. Almost one hundred years later salicylates are still in constant use, and as much the subject of research and discussion as at any previous time. This example of serendipity, which in truth was a sheer fluke, serves the useful purpose of bringing me down to the more modest level of the everyday lives of those who practise medicine, in which missed chances are leavened by the delights of serendipity, in which accident and sagacity play a varying part.

First let me tell you of an uncomprehended opportunity. For several years in London I worked in the Brompton Chest Hospital, and probably thousands of times I examined the chests of patients by fluoroscopy and looked at their X-ray films. It was the lungs I was interested in primarily, and perhaps my comparative ignorance of heart disease deterred me from paying much attention to the silhouette of the heart. I went from the Brompton Hospital to the National Heart Hospital, and there the X-ray appearance of the heart became of major importance to me. There were certain features about the appearance of the lungs that excited our attention on rare occasions, but in the main it was the silhouette of the heart and the roots of the lungs that captured our attention. Many times we were confronted with patients, some of whom appeared blue and some did not, in whom the vague diagnosis of congenital heart disease was made. I did not see that one could divide these patients into two groups, in one of which a great deal of blood was passing through the lungs, and in the other the amount was very small. Yet that simple observation, made at a much later date, I believe by Dr. Helen Taussig, did much to simplify the classification and further the treatment of congenital heart disease. I look back ruefully to the realization that cardiologists were confining their attention too rigidly to the heart to the neglect of the neighbouring structures, and sometimes of the person as a whole. Perhaps in his worst moments a specialist is a person who puts the heart before the corpse.

The late Harold Gatty, described as the foremost navigator of his time, wrote a book which he called "Nature is your Guide". He begins by discussing the sense of direction and the belief that those who have it highly developed are gifted with a sixth sense. We have a vague term in medicine, somewhat analogous, which we call a "clinical sense", and we are apt to look upon those who possess it as being specially endowed. Gatty goes on to state:

> I do not believe there is any sixth sense. A man with a good sense of direction is to me, quite simply, an able pathfinder, a natural navigator, somebody who can find his way by the use of the five senses developed by the blessing of experience and the use of intelligence. All that the pathfinder needs is his senses and knowledge of how to interpret nature's signs. A good pathfinder can become so proficient that he can amaze the average person.

If one substitutes clinician for pathfinder, then these sentences still express a truth. Doubtless it was the opportunities that it afforded for the employment of these faculties that made neurology such an appealing branch of medicine to Sir Richard Stawell at the zenith of his career. But it should be emphasized that he was above all a general physician in the highest sense of the term, astonishingly versed in every branch of medicine at a time when the opportunities for the use of the senses and

the observation of physical signs were much greater than they are today. Today the frontiers of disease have been pushed back until in many instances there are neither symtoms nor signs of ill-health, and we are dealing with people who may protest that they feel quite well. Among the incalculable benefits of mass radiography of the lungs has been the discovery of such diseases as tuberculosis and cancer of the lungs before either the doctor or the patient could otherwise be aware of their presence. However useful the stethoscope may be, one cannot pretend that we were making any impression upon the eradication of tuberculosis when we depended so much on the patient's symptoms and this instrument for diagnosis.

Sir Richard Stawell was interested in œdema, but the light that has been shed on this subject comes from laboratory investigation unthought of in his day. He would have been interested in catarrhal jaundice and cirrhosis of the liver, but the interest of these diseases has shifted from the physical signs to the laboratory and epidemiology, and so it is with so much of modern medicine. Gatty, discussing the use of the five senses in reading the physical signs in nature, points out that inventions such as radar and even the compass have made man less dependent on physical signs, and therefore less able in times of necessity to use his own natural attributes. Nevertheless, the navigator has radar and the compass on the bridge of the ship, but their counterparts in medicine are not so conveniently placed in relation to the patient. If one wishes to investigate the intestinal tract, one may have to go to the bowels of the hospital. In a sense the control has shifted from the bridge to the engine room. We are therefore in danger of postponing decisions of all sorts until we have the results of laboratory investigations, and indeed sometimes of postponing decisions by ordering laboratory investigations. Denied the facilities which we now have and the truths revealed in the last twenty-five years, how did Sir Richard Stawell cope so successfully with the problems which were every bit as urgent in his day as in ours? What I have been saying leaves out of consideration a factor which has changed less than the disease which we may be investigating. It is the human factor, the common denominator between his age, our age, and the age of those who follow; it is the stranger who walks into our consulting rooms or into the out-patient clinic, or beside whose bed we sit. I like to think that two experiences in my medical life have given me some insight into this field of human relations in which Sir Richard Stawell had such influence.

One morning in the spring of 1933, while working at Brompton Hospital, I was offered the job of running a sanatorium in the Swiss Alps for the summer months. My chief advised me not to leave London, but the opportunity of working in Europe was tempting and I went. There I lived in a sanatorium on the outskirts of a mountain village at close quarters with a group of people who were suffering from tuberculosis, who came from many different places in the British Empire, and from many different walks of life. In many instances their relations were staying in the village. I doubt if it would be possible to repeat that experience, for both the British Empire and the treatment of tuberculosis have changed. I saw the patients every day under all sorts of circumstances, and as I could not discuss tuberculosis with them at all times, I gossiped with them on their own subjects, their work, and their interests. I realize now that I turned the sanatorium into an adult education centre, with myself as the student taking a wide variety of subjects embracing English and European literature, geology, alpine flora, dragonflies, fox hunting, blood stock breeding, wine, private banking, the administration of British colonies, and finally what is euphemistically known as Life. It was an enchanted summer, and an unforgettable experience. How much more significant that experience might have been I was to realize a year later.

When I returned to London, after a short stay at the Brompton Hospital, I went to the National Heart Hospital, and the following year I went to Mundesley in Norfolk to do the summer locum in the leading private sanatorium in England. There were 69 patients, and on five days of each week I would visit them in the morning and evening. The evening round was intended to be rather perfunctory, and my seniors were accustomed to seeing the patients between 5.30 p.m. and 7 p.m. I lacked the necessary skill, and sometimes finished at 10 o'clock at night. One evening I stood by the end of the bed painfully making conversation with a doctor patient, who to say the least was reserved. He was a psychiatrist, and had been first assistant to Dr. T. A. Ross, who probably would not have called himself a psychiatrist, but who none the less made a greater contribution to the understanding and treatment of common nervous disorders than anyone of his time in England. Ross has been described as a man of independent mind and irreproachable integrity. He had learned his methods in a very practical school, the school of his own experience, yet it would be a mistake to suppose that he relied upon personality and common sense, although he had both in uncommon abundance. His methods were simple, systematic, and logical, the result primarily of the quality of his own mind with an application of the methods of Dejerine and Freud reinforced by an intuitive perception of the foibles of human character. Do not these few lines embody the timeless qualities of the physician, be he psychiatrist or not? I knew nothing of all this as I stood at the end of the bed that evening wondering how I could make my exit. Suddenly the doctor said to me: "Would you like to know what we patients think of you doctors?" I said that I would, and he invited me to sit on the chair on the right hand side of the bed. As I did he observed that there was something to be said for the old-fashioned family doctor who sat by the patient with his fingers on the pulse. "He faced your way and one felt that he was on your side." My patient went on to say that the doctors at the sanatorium stood at the end of the bed and gazed down upon him, and he was aware that they were already planning their exit. One of my seniors was six feet four in height, and if he left the end of the bed he invariably stood on the left side. The doctor had a chronic pleurisy with effusion on that side. None of these circumstances gave any encouragement to a patient who wished to unburden himself. He then asked me to look at the room, and to tell him what I noticed. Humbled already, I looked about me and saw only a small room with bare walls and a window opening on a field of ripening corn splashed with poppies. I told him that I noticed nothing in particular. He pointed out that the bed divided the room into two halves and asked me which was his half. On the table to the left of the bed I noticed some books, a Bible, Shakespeare, and the works of Goethe in German. On the table beside my chair was a photograph of his fiancée, a German girl, some comic postcards and some grotesque rubber faces held by suction to the wardrobe. Obviously the room to the left of the bed was his. He told me that if I had been trained by Ross I would have noticed the advent of the postcards and connected them with the arrival of his fiancée, to whom he had introduced me some days before, and I would have understood that he had been depressed and that these were her simple ways of trying to brighten him. He then asked me what I thought of the view, and I said that it could have been copied from Van Gogh. He asked me to imagine myself looking at that scene through all one's waking hours for weeks on end.

I came away profoundly disturbed. I had been qualified for eight years, and nobody had ever told me these things, and they were not to be found in books. Some might think that it is carrying the art of medicine too far to expect such perception. Yet what help I might have given that reticent man if by accident and sagacity I had found for myself the things that he had told me! In a sense I had repeated the mistake I had made at the Heart Hospital, when in the darkened room I gazed on the heart through the X-ray screen and shut my vision off from the lungs. Here I gazed at the patient and the bed without being aware of the environment. I returned to him night after night, and sometimes spent several hours listening to what he had to tell me, most of which had been instilled into

him by Ross. I learned of the manifold ways in which patients try to communicate with doctors, and their use of words often as a code which they think the doctor will understand. The last words tossed off by the patient just as I reached his door to make my exit found at last their true significance. Day after day I would do my round, and sitting by the patients' beds I would find myself in possession of information that I had neither the sagacity nor the training to deal with. Back I would go to my doctor patient to ask him what to do next. The number of discoveries made by accident increased, even if those made by sagacity did not keep pace.

The sort of thing I learned so painstakingly may be more easily acquired today, but I doubt it. My students and I gathered around the bed of a man of forty-seven. The clinical clerk gave the history. In a very few months he was to take his final examinations. He described the story of a duodenal ulcer, and he gave the man's occupation as a labourer, but nothing in his appearance other than his calloused hands seemed to fit. I asked the patient how long he had been a labourer, and he said three years. I asked what he had done before that, and he replied that he had been a departmental manager in a firm where he had been employed for thirty years. I knew this firm as enlightened employers. We moved away and I told the clinical clerk to go back and to sit down beside the patient each day until he found out why this man was working as a labourer, and then we might be able to deal more effectively with his ulcer. If physical signs are no longer so important and laboratory investigations so increasingly important in the hospital world in which we train our students, should we not endeavour to instil into them a greater awareness of the stranger who is endeavouring to communicate with us, and with whom in the final analysis we have to communicate? I have the highest regard for academic medicine, and for the human understanding of many who practise for the whole or for the major part of their time in teaching hospitals, but the plain fact is that they are confronted with but a fraction of the problems that arise in the practice of medicine. What is more, when the patients do reach the wards of the hospital, that first meeting which is of the highest import is over, and the student has too ready access to a lot of hearsay evidence which leads him to spend too little time on the history and too much on the physical examination. Yet it is freely maintained that students should be taught by men engaged whole time in teaching and research.

Life in a sanatorium has made me a gossip, and I shall give two examples of the happy accidents that came from it. I was taking the history of the illness of a woman whose home was in Abbotsford. It is not now a good suburb, but in my childhood there was a station homestead there called "The Rest", with great stables and a rambling garden which I suppose once ran down to the river. It was the home of Richard Goldsborough Row when I went there. I talked about this place, and my patient told me that she had lived in Abbotsford many years, and eventually she and her husband had decided to buy the home in which they lived. People in her walk of life are not usually polysyllabic, and as she talked I was struck by her vocabulary. I said to her at random that she must be fond of reading, and she asked me how I knew. Eventually out of our conversation came a story. One day quite out of a clear sky a letter had come inviting her husband, a waterside worker, to go to Switzerland to a meeting of moral rearmament. He went, and was deeply impressed by the visit. He went from there to Germany, stayed in London with a doctor in Harley Street, and came home by way of the United States, determined to do his utmost to fight the evils and dissension on the waterfront. He did not have an easy time, but despite difficulties and opposition he stuck to his principles. Then his wife noticed that he was spending more time at home, and finally the truth came out. He was not being picked up for jobs, and they were falling behind in the payments on the house, yet the husband would not compromise. This hitherto undisclosed conflict in the lives of a proud man and woman was the central cause of her illness.

One morning nearly two years ago an attractive woman of forty came from the country to see me. Her doctor told me that she had such an intractable cough that he had serious fears about the state of her lungs. The patient herself told me of the embarrassment caused by the cough in her daily life, for she was a switch operator in a country town. As I was about to examine her I noticed a sapphire engagement ring on her finger, and pointing to it I said: "What are you going to do about that?" She replied: "I am not going to marry until I get rid of the cough." I asked her how long she had been engaged, and if she realized that most people are afraid of getting married. She admitted that she had been engaged for fifteen years, and had had the cough for only four years. The reason that she had not been married before the advent of the cough was a good one. She had never been asked. Four years ago her fiancé threw off his lethargy and began building a house, which was now completed. By this time her enthusiasm had waned, and she gave me two reasons, in addition to the cough, why she did not wish to get married. She eventually gave me the fourth and most important reason, which was that she was in love with another man. I had noticed that she had given an address which was not that of the town where she worked. Her home was ten miles away, and she travelled to and fro in a small motor-car. She told me that the car was beginning to give trouble, though it was only two years old. I was astonished to find that in that time she had travelled twenty thousand miles. I asked her how she could cover such a distance, and she gave as a partial explanation thirteen journeys to Melbourne, a distance of over three hundred miles, for sinus treatment. Now I am sure that her sinuses merited attention; but no treatment to the sinus is likely to cure a cough in a woman engaged for fifteen years to a man she no longer wishes to marry. Some people do not know whether to laugh or to cry, so they resolve the dilemma by coughing. Her final words were: "You won't tell my doctor about this?"

I was so impressed with this history that I sent the patient into the Royal Melbourne Hospital for a few days in order that my students might learn something from her. I went to great lengths not to disclose any of the facts I had elicited, and I confess I was quite excited in anticipation of what my students would make of the story. The clinical clerk was a young man with an outward air of maturity and considerable charm. He could not have been better chosen for my purpose. He began the history by saying: "This is Mrs. Anyname and she is a stenographer." I was greatly shaken by this, for it was only five days since I had seen her, but to my relief she said to him: "It's Miss Anyname and I am a switch-operator." "Oh", said my student, "it does not matter in any case." (I began to understand how the morning and evening paper can differ about the news.) From then on he went further and further off the track, and concluded that the patient had either bronchiectasis or tuberculosis of the lungs. Students in my experience rarely stop to analyse the history before they begin the examination of the patient, yet the history is so much more important than the examination that it should be obligatory. I could speak at length of the things that I think are worth noting when talking to a stranger—or should I say listening to a stranger talking to a doctor about his malady? Those clean socks, the best blue suit and the tie that clashes so badly with everything are not lightly assumed, nor are they the only things he has donned this day. He has clad himself sometimes with a new character, or at least he presents only a partial picture of himself. He has composed his history and doctored his story and all these things have to be taken into account. I have spoken of vocabulary, and tried to convey the pregnancy of a phrase or a sentence which may give birth to the pleasures of serendipity, and I could tell stories of accents and dialects, and of introspective artisans, and of the immense importance of the cultivation of memory. Finally, though we should have a knowledge of industry and occupations,

we should never lose our bond with the domesticity of medicine, for in this divorce the physician loses at least as much as the general practitioner. These are not the things that the patient is expecting to discuss when he prepares his story for the meeting, but I have tried to show how much more generously the stranger may give himself away in gossip. It is easy to take a history of a disease, it is difficult to take a history of a patient with a disease. My colleagues may think me very naïve to be talking in this fashion of things they would regard as being implicit in the physician's life, and each of them could recount many examples of serendipity such as I have described. Yet I trust that they will not grudge that I have spoken of these small successes, for well they must know how often I have failed.

An oration should be an enterprise of great pith and moment, but I have been speaking of small things that will not contribute one iota to the saving of life or to the sum of human knowledge; yet the practice of medicine as it comes to me, and doubtless as it came to Sir Richard Stawell, derives much of its pleasure and satisfaction from the things about which I have been talking. I have been thinking about him as I have been giving this address. I doubt if he made any original contributions to medicine, but the stuff of his life is woven into the pattern of countless lives in families who in this transitory life have been in trouble, sorrow, need, sickness or any other adversity. I think one might apply to him the words that Dr. John Brown used in his essay on Sydenham, that human life was to him a sacred, a divine as well as a curious thing, and he seems to have possessed through life, in rare acuteness, that sense of the value of what was at stake, of the perilous material he had to work in.

> Time hath my Lord, a wallet at his back,
> Wherein He puts alms for oblivion.

If I were to try to conjure him back, where should I seek him? With an effort of memory I can see him rounding the corner of Spring and Collins Streets, winding his way past the Freemasons' Hall. His old hospital in Lonsdale Street would be too lonely for him, and he would be lost in the echoing corridors of the Royal Melbourne Hospital. No, curiously enough, he comes most readily to me in a place where I never saw him in life, three hundred miles away at the Waterfall Farm Fly-Fishers' Club. There in the old farm house, and in the garden and the orchard, and on the river where he fished with a goodly fellowship, and from whence he departed for the last time on January 15, 1935, in his seventieth year, he seems unforgettable.

Let me give you one last example of the happy accident. One day last summer everyone had gone fishing, and I was alone at the farm. It was high noon, and I was aware of the indefinable quality that broods around a place at such times. The sun shone in an almost cloudless sky; the ceaseless undertone of the waterfall carried into the still air; the strident notes of birds and insects never seemed quite to defeat the insistent silence of the bush. I wandered indoors, and from the bookshelves picked the old diaries of the club, and found that on such a day Stawell had stayed at the farm, and in the familiar term spent the day "making and mending". How much in keeping with his life, I thought. I put the diaries back, and I saw next to them a much worn volume, on the spine of which was the title "Insects of Australia and New Zealand", by Tillyard. It took me back twenty-five years to Switzerland in 1933, when I looked after a "Bart's" surgeon who developed acute appendicitis while collecting alpine flora. During his convalescence I discovered that he was a world authority on the dragonfly. Not so many years ago he wrote to ask me with whom he should correspond about the Australian dragonflies now that Tillyard had died. To my shame I had never heard of Tillyard, but I made the necessary inquiries. It was this incident that prompted me to pick the book from the shelf. On the fly-leaf was written: "Presented to Waterfall Farm Fly-Fishers' Club by R. R. Stawell, 1933." On the title page I found that Tillyard was a distinguished entomologist and a Fellow of the Royal Society. At the bottom of the title page was the dedication in Latin which I like to think Sir Richard approved of: "*Omnibus qui in minimus mira naturæ perquirunt*", for I too make my dedication to all those who seek the wonders of nature in small things, and to the memory of Sir Richard Stawell.

HAPTOGLOBINS AND HÆMOGLOBINS IN AUSTRALIAN ABORIGINES, WITH A SIMPLE METHOD FOR THE ESTIMATION OF HAPTOGLOBINS.

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THE origin and affinities of the Australia aborigines are unknown. The well-balanced comprehensive review recently published in the Australian Encylopædia shows the diversity of opinion. Very briefly, two main schools of thought are in disagreement today. One school believes that the aborigines are a homogenous group which probably arrived on the continent in one migration, and which now shows a considerable range of physical types as would be expected in a scanty population living in scattered genetic isolates. The other contention is that the aborigines comprise three entirely different peoples: Oceanic negritos, archaic Caucasoid people, and a third group alleged to represent, with low caste and aboriginal peoples of India, a fourth major racial group of humanity (Birdsell, 1950 and 1957). This scheme is primarily based on differences in appearance and anthropological measurements of small groups of aborigines in three different parts of Australia. This lack of agreement naturally stems from lack of factual knowledge. The origin of peoples may sometimes be deduced from cultural, religious or linguistic evidence, but the Australian aborigines are too unique in these respects. Physical anthropology, which includes appearance and skeletal measurements, is the second approach. Unfortunately, so many genetic and environmental factors interplay in the determination of these features that at the best of times they are only statistical approximations.

It is only in recent years that more hopeful approaches have become available; the old dispute about the antiquity of the aborigines is being settled by fluorine and radiocarbon determinations. Claims ranging from more than 100,000 to less than 10,000 years are being narrowed down to some time between 10,000 and 20,000 years (Gill, 1955).

Another attack is by means of the characters determined by single genes. They have a simple inheritance and a low mutation rate, and their measurement is easy and definite. They include the blood groups, the hæmoglobins and, very recently, the haptoglobins. There is every reason to believe that more of these genetic markers will be found in the future (Smithies, 1957), and it is not too sanguine to predict that if the riddle of the aborigines is to be solved it will be by surveys of these characters in Australia and the surrounding regions. There is a certain urgency about the collection of the data, because of the inevitable absorption of the aborigines into the general population.

The blood groups have been investigated more fully in Australia and the surrounding territories than anywhere else except Europe, by the splendid work from the Commonwealth Serum Laboratories in Victoria. At the present state their work generally supports the contention that the aborigines are a homogenous group, genetically unique and distinct, and it has not as yet given a clear pointer to affinity with other Asian peoples (Simmons, 1956 and 1957).

The different human hæmoglobins are of pertinent interest in regard to Australia. Different types are present in great numbers in the populations in southern Asia, and there is evidence that at least the sickle-cell hæmoglobin has spread from its original focus in India all the way to Africa (Lehmann, 1953; Singer, Budtz-Olsen, Brain and Saugrain, 1957). The different hæmoglobin types depend on the slightest alteration in the globin part of

the molecule brought about by a minute change or mutation in one single gene. Sickle-cell hæmoglobin (S) differs from normal hæmoglobin (A) in only one of 300 amino-acids, and similarly hæmoglobin C differs from the other two by having one different amino-acid residue (Hunt and Ingram, 1958). This apparently insignificant change in the molecule gives it specific physico-chemical characters which makes its identification surprisingly easy, e.g. by the simple procedure of electrophoresis. It also gives the hæmoglobin the undesirable properties which in the homozygous situation lead to severe anæmias or blockage of blood vessels as in sickle-cell disease. The one exception to this general description of the human hæmoglobins is the condition called thalassæmia. No abnormal hæmoglobin is found in thalassæmia, but some unknown metabolic block prevents the normal change from fœtal to adult hæmoglobin after birth. Thalassæmia, however, has the same simple inheritance as the different hæmoglobin types. It has a widespread unexplained distribution in many populations living round the Mediterranean Sea and along the shores of the Indian Ocean, and its ethnological importance is probably less than that of the hæmoglobins. These are found in much the same areas, including most of Africa, but have a more distinct distribution, each hæmoglobin being confined to a particular population from which it may then have spread by migration of the peoples. Many species of animals have also two or more hæmoglobins, but in no case so far reported or examined in this laboratory has there been disease or other manifestations associated with these different hæmoglobins. There are two types of hæmoglobin in sheep, inherited as usual by two allelomorphic genes, but the two types of homozygous animals and heterozygous sheep are equally normal and healthy. In animals one cannot as yet speak of "abnormal" hæmoglobins.

Haptoglobins were first described in about 1939 by Jayle (Jayle and Boussier, 1954), but it is only in the last few years that they have received attention outside France, and it is only since the introduction of the refined starch method of electrophoresis (Smithies, 1955) that their ethnological possibilities have been realized. The haptoglobins are α_2-globulins, which like several other plasma proteins act as carriers, in this case of free hæmoglobin. By this binding of the hæmoglobin ("hapto" is the Greek root for "seize") the haptoglobins prevent the excretion of the small hæmoglobin molecule through the kidney, with consequent loss of precious iron or blockage of the lower nephron.

It has been shown that three types of haptoglobin groups—haptoglobin 1-1, haptoglobin 2-1 and haptoglobin 2-2—can be distinguished (Smithies and Walker, 1956). They are probably determined by two autosomal genes, and as the numbers indicate haptoglobin 1-1 and haptoglobin 2-2 are produced by homozygous genotypes, whereas haptoglobin 2-1 is the heterozygous offspring of these two. It was shown very soon (Sutton, Neel, Binson and Zuelzer, 1956) that the distribution of these groups differed completely in different peoples. Very recently Allison, Blumberg and ap Rees (1958) have suggested the existence of a fourth group with no haptoglobin at all. However, intravenous injection of hæmoglobin causes the disappearance of haptoglobin from the bloodstream, and it takes a long time for it to reappear (Laurell and Nyman, 1957); conditions manifesting hæmolysis often give rise to ahaptoglobinæmia (Aber, Neale and Northam, 1957), and liver disease may also cause their disappearance. As Allison *et alii* (1958) found only 2·7% of their new group (Hp 0-0) in Europeans as compared with 32% in Nigerian Africans, the thought certainly springs to mind that the absence of haptoglobins was not genetically but environmentally determined; malaria and the liver of malnutrition are still only too common in Africa.

As in the case of hæmoglobins, animals also show a species difference in their haptoglobins. Reich (1956) in Melbourne showed that dogs and cats had similar haptoglobins to the human, but she could find no hæmoglobin-binding proteins in sheep, guinea-pigs or rats.

This work reports the distribution of hæmoglobins and haptoglobins in two groups of Australian aborigines, one in Central Australia and the other in northern Queensland. It also describes a simple field method for the estimation of the haptoglobin groups which greatly facilitates this otherwise lengthy and difficult determination.

Material.

The material studied consisted of blood samples from 100 Australians of European descent, 100 aborigines from Central Australia, and 123 aborigines from Northern Queensland. The members of the first group were mainly medical students and a few staff members. A third of the 100 specimens from Central Australian aborigines were collected at Haast's Bluff and the rest at Alice Springs. Most of the specimens came from members of the Pintubi tribe, the rest from Pitjandjara, Ngalia, Walbiri and Aranda tribes. These were mainly young adults; no children under 10 years of age were included. Specimens were collected from northern Queensland aborigines at a number of mission stations round the eastern shores of the Gulf of Carpentaria. The majority of these specimens came from young people 10 to 17 years of age. Only very few were closely related, and if two or more persons had the same name, only one was included in the sample.

Methods.

Hæmoglobins.

The hæmoglobin solutions were prepared by washing the red cells in saline and hæmolysing them in four volumes of water and a quarter volume of toluene. Electrophoresis of the solutions was carried out on Whatman No. 3 paper, horizontally suspended in closed tanks with barbiturate buffer, μ 0·05, pH 8·6; the voltage used was 10 volts per centimetre at room temperature for about six hours.

Haptoglobins.

Serum was collected and enough hæmoglobin solution added to give a concentration of about 200 milligrammes per 100 millilitres. After a few proper estimations of this concentration in a colorimeter, simple judgement of the colour by eye proved sufficiently accurate. Under the field conditions of taking the blood many specimens were slightly hæmolysed before the serum separated; these were used without addition of hæmoglobin.

The details of the electrophoresis are as follows.

Apparatus. The tank described by Flynn and de Mayo (1951) with vertically suspended paper strips, Whatman No. 3 paper was used. Other tanks will serve the purpose, but owing to the longer distance between the protein fractions obtained with the Flynn and de Mayo method, haptoglobins can be determined with greater confidence with this apparatus.

Buffer. Barbiturate-borate buffer of Consden and Powell (1955) was used. For convenience the details of preparation are as follows: 1·84 grammes of barbituric acid, 10·30 grammes of barbitone, 4·809 grammes of boric acid, and 0·888 gramme of sodium hydroxide are dissolved in two litres of water, and four millilitres of the non-ionizing detergent "Tween-80" are added. With this buffer the α_2-globulins migrate faster than in the usual barbiturate buffer and are well separated from the β-globulins, which makes the differentiation between the different haptoglobins easy. The α_1-globulins are lost in the albumin fraction, but this is unimportant for the purpose of haptoglobin determination. The detergent sharpens the bands of the different fractions, but is in no way essential.

Conditions of the Run. The paper is allowed to soak in the tank until the buffer is about a centimetre from the edge; 0·04 millilitre of serum is applied to the edge; the tank is closed and left for about an hour and the current is then switched on. Because of the great summer heat in Brisbane, and to ensure equal conditions the year round, the runs have been made with the tank in a refrigerator at 5°C. and a voltage of 130 volts for 22 hours, but room temperature is satisfactory.

Staining. After the run the paper strips are dried in an oven at 105°C., but again room temperature will do. They are then soaked for 10 minutes in a solution of 0·2 gramme of benzidine and a small crystal of sodium nitro-

prusside in 15 millilitres of methanol with four drops of glacial acetic acid. This solution is washed off with a solution of one volume of 3% hydrogen peroxide, one volume of ether and two volumes of methanol, and the colour is then developed with this solution for two to three minutes. The paper strips are washed in gently running tap water for about half an hour. The blue colour is permanent, but no work has been done on the quantitative aspects of this staining.

The three haptoglobin groups are shown in Figure I.

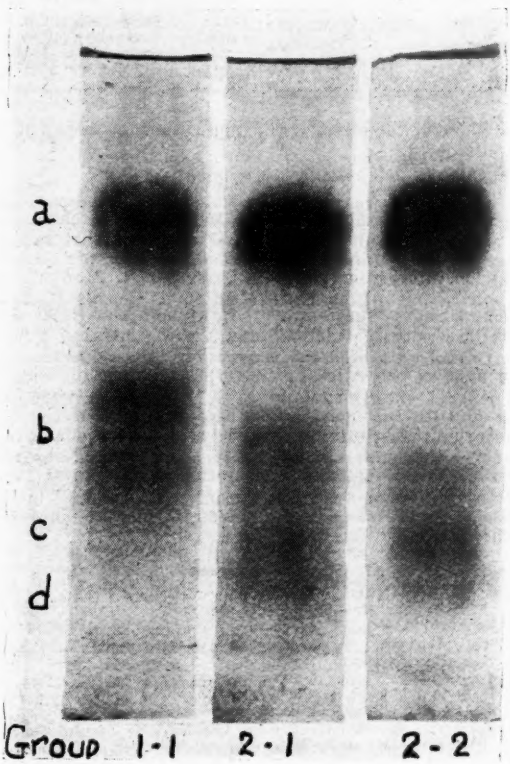

FIGURE I.

The three groups of haptoglobins. The group is determined by the distance moved by the haptoglobin and not by the concentration which varies greatly even in individuals of the same group. *a*, albumin; *b*, haptoglobins; *c*, position of globulins; *d*, point of application.

The groups of the three sera used to make the photograph were first determined by the starch method of Smithies (1955). On not more than two or three occasions were sera with no haptoglobins encountered; they, for lack of better knowledge at the time, were qualified as group 2-2, but do in no way affect the results. The great individual differences in the amount of haptoglobin present in the serum is very striking with this method, but these variations in no way obscure the distinction between the different groups, which depends entirely on the distance moved by the particular haptoglobins. For ease of judgement a known group 2-1 should always be run with the unknown.

Anyone who has worked with Smithies's extremely elegant method will know that both the practical difficulties in the preparation of the starch slab and the difficulty in the interpretation of the result make it more of a research method than a tool appropriate for field surveys. It is hoped that the simple procedure here described, which can actually be carried out in the field itself by taking the current from batteries, will make possible larger surveys in other parts of the world.

Urinary Methyl Mercaptan Excretion After Eating Asparagus.

It has been suggested that this ability of excreting mercaptan after asparagus ingestion is determined by a single autosomal recessive gene (Allison and McWhirter, 1956). The characteristic smell of mercaptan is quite easy to detect in the civilized surroundings of a laboratory, and an attempt was therefore made to estimate the incidence of this gene in the aborigines. There was no difficulty in getting them to eat the asparagus, but it proved very difficult to collect the urine (one man brought a bucket of blood which he had obtained by reopening his penile subincision). When the urine was eventually obtained from a number of aborigines a general, but rather violent, odour of ammonia and other bacterial by-products developed rapidly in the sun and dust of Central Australia. It was quite impossible even for non-smokers to detect mercaptan in that atmosphere. The attempt was therefore abandoned. Some rapid chemical method of detecting mercaptan must be developed before it becomes a practical field procedure.

Results.

Hæmoglobins.

The hæmoglobins in all three groups were of the normal adult type. A few suspicious specimens were reexamined by agar-plate electrophoresis, but showed only traces of hæmoglobin A_2. This absence of abnormal hæmoglobin types fits with the fact that none of the blood samples showed obvious signs of anæmia.

Haptoglobins.

Table I gives the frequencies of the haptoglobin types in the three groups, and also compares them to the frequencies reported from elsewhere in the world.

Discussion.

The absence of all hæmoglobin types other than the normal adult hæmoglobin A in the Australian aborigines is of no help in the effort of tracing their origin and affinities, but it does raise some interesting questions. Horsfall and Lehmann (1956) who similarly found no abnormal hæmoglobins in 166 aborigines from Queensland speculate about the late arrival of malaria in Australia as a cause for this absence. The argument is at the moment most tentative, as it is only sickle-cell hæmoglobin that has in any way been linked with resistance to malaria. The heterozygous carrier of the sickle-cell gene is less likely to succumb to malaria than the person homozygous to the normal hæmoglobin genes, so although the homozygous subject for the sickle-cell gene usually dies before the reproductive age is reached, the abnormal gene is kept up in a population living in an area where malaria is endemic. This is a case of balanced polymorphism. Horsfall and Lehmann point out themselves that it would be premature to ascribe the lack of abnormal hæmoglobins in Australia to this cause. Budtz-Olsen and Burgers (1955) have pointed out the difficulty of applying this malaria theory in southern Africa. North of the Zambezi River the sickle-cell gene is spread far and wide in many African tribes, but south of the river it is hardly found at all, although in areas like Zululand malaria has been hyperendemic for generations. They suggested the much simpler explanation for the situation in Africa: the Zulus, Xosas and other tribes had already crossed the Zambezi before the sickle-cell gene arrived in Africa from India, where the original mutation is supposed to have taken place. The old population in South Africa, the Bushmen, do not possess the gene, and there is fair evidence that it only arrived in Africa altogether in very recent times at about A.D. 700 (Singer, Budtz-Olsen, Brain and Saugrain, 1957). Singer *et alii* also found an illuminating situation on Madagascar. Here the original population came from the east, probably from the area of the Indonesian archipelagos, and in fairly recent times, as these people brought with them an advanced culture based on rice cultivation. These people again had no abnormal hæmoglobins; the sickle-cell gene now found on the island can be ascribed entirely to subsequent slave traffic with Africa.

TABLE I.

Haptoglobin Groups in Various Populations.

Peoples.	Number Tested.	0–0. (Percentage.)	1–1. (Percentage.)	2–1. (Percentage.)	2–2. (Percentage.)	Source of Information.
Canadian whites	49	—	21	51	28	Smithies (1955).
American whites	54	—	11	54	35	Sutton *et alii* (1956).
Danish whites	1033	—	17	47	36	Galatius-Jensen (1957).
Swedish whites	160	—	21	41	38	Nyman (1958).
British whites	218	3	10	55	32	Allison *et alii* (1958).
Spanish Basques	107	1	14	46	39	Allison *et alii* (1958).
Australian whites	100	—	14	58	28	Budtz-Olsen (1958).
Australian aborigines:						
Central Australia	100	—	40	47	13	Budtz-Olsen (1958).
North Queensland	123	—	12	68	20	Budtz-Olsen (1958).
Liberian and Ivory Coast (African)	142	—	49	42	9	Sutton *et alii* (1956).
Nigerian (African)	99	32	54	11	3	Allison *et alii* (1958).

It is tempting to believe from this, as yet, very scanty evidence that the mutations that gave rise to the different human hæmoglobins in the east took place in fairly recent times. This conception was originally difficult to reconcile with the findings in India, where the sickle-cell gene was only found in some primitive aboriginal tribes in the hill-lands of southern India; but as the survey has continued, it is now clear that the sickle-cell trait is found scattered all over India (Shukla and Solanki, 1958). A second objection might be the independent presence of hæmoglobin C in West Africa, but whatever theories are propounded for the origin of the hæmoglobins, hæmoglobin C must be accepted as having arisen somewhere in northern Ghana, from where it has spread only to immediately surrounding areas. It is in any case only a slight variant of hæmoglobin S; the only difference between the two is a single amino-acid residue as already mentioned. It should eventually be possible by more intense and exact surveys in southern Asia to put a date to the original mutations and the subsequent spread of some of the hæmoglobins.

There is thus some reason to believe that the Australian aborigines arrived on the continent before the abnormal hæmoglobins had arisen or spread to the area from which they came. The American Indians have no abnormal hæmoglobins, and even in New Guinea only normal hæmoglobin has been found. A sample of 78 blood specimens provided by the Red Cross Society's blood transfusion service has been examined in this laboratory with negative results, and in Dutch New Guinea 250 natives had no abnormal hæmoglobins (Jonxis, Huisman, da Costa and Metselaar, 1958).

Interpretation of the haptoglobin results is at the moment impossible. It certainly does appear that white Europeans fall in a distinct group wherever they have migrated on this earth, but the two surveys in Africans and the present one in Australian aborigines are far too isolated to have any meaning. They are simply the first milestones of what might turn out to be a new useful ethnological road. The striking difference between the haptoglobin group of the central and northern aborigines is an early warning that future surveys will have to be interpreted with diffidence. Some may take the difference as a support for the triple-origin theory, but all that it really indicates is that more data must be collected both with regard to the inheritance of the haptoglobin groups and even more to their distribution in different peoples, including the Australian aborigines.

Summary.

1. A simple method for the determination of the haptoglobin groups is described; it is hoped that this method will make surveys of different peoples in different parts of the world easier and more rapid in the future.

2. No abnormal hæmoglobins were found in a sample of central Australian and in another sample of northern Australian aborigines.

3. The haptoglobin distributions in these two groups were entirely different. They were also different from the distribution in white peoples of European origin and in two groups reported in West African Negroes.

4. Some of the ethnological implications of these findings are discussed.

Acknowledgements.

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MORBIDITY RECORDING IN A SMALL COUNTRY PRACTICE.

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INQUIRY into the significance of disease has so far largely been limited to mortality statistics. Morbidity, apart from that due to the specific infections, is less easily studied. Yet morbidity forms the bulk of human suffering and causes the greatest financial loss to mankind. Without more exact knowledge of morbidity, the health administrator can hardly estimate how best to expend his funds. Morbidity figures are, of course, an important guide for the efforts of the pharmaceutical industry, for the scope of charitable organizations and for the development of medical training to top-grade efficiency. Henry Shannon (1957) has made the statement that "we are sadly in need of a bill of morbidity".

"Morbidity recording" for the purpose of this paper means the recording of the medical determinations of the pathological causes of consultation. By "medical determination" the author means the summary of the doctor's interpretation of the patient's environment, history, symptoms, signs, examination, special tests and opinions, response to treatment and follow-up investigation. The Medical Research Council (1944) expressed the same notion as "the final diagnosis of the principal disease or injury, on account of which the patient sought treatment".

Many attempts have been made and are being made at present to study morbidity on a sample basis. The report of the Medical Research Council (1944) states that, in England, "work has been done by individuals (McGregor, Fry, Watts and Horder), each independently using his own method of classification and analysis. An unfortunate result of this is that figures, independently collected, were not always comparable". Work of this type has been going on, and is increasingly going on, in many countries. In Austria Robert N. Braun has published a series of 10,000 general practice determinations.

The first coordinated morbidity studies were organized by W. P. D. Logan and were carried out in 12 general practices in England under the ægis of the College of General Practitioners. The next stage was the larger survey of 108 practices, which was conducted by the College and by the Registrar-General's Office. Some results of this survey have been analysed by Logan (1952). Such studies will, no doubt, yield an unprecedented wealth of information about morbidity and the techniques to be employed. However, sample studies may not supply all the information that we need. For some purposes, continuous recording of morbidity in the entire population may be necessary. This alone will utilize general practitioner research to its full advantage. This seems to be a formidable task. No country has as yet attempted to tackle its economic and legislative implications. However, there is no reason why a young country like Australia, with a limited population and an enthusiastic team of general practitioners, should not give a lead to the rest of the world.

Ideally, morbidity recording should embrace the entire population continuously. The details should be kept simple in order to facilitate operation of the system; accurate diagnoses should be given, disclosing the underlying cause. The records should permit follow-up studies and should be internationally comparable. It is desirable that this should disclose the reasons for consultation, e.g. definite symptoms, anxiety of relatives or for hospitalization. For administrative purposes, it would be useful to show the cost of the family doctor, consultants, hospitalization and incapacity for work.

As it appears impracticable to achieve all these objectives at once, I suggest that morbidity recording be introduced in carefully considered stages, using in each stage the experience gained in the preceding stage. These stages would be three, namely, a diagnostic stage, a therapeutic stage and a stage of complete medical audit.

The Diagnostic Stage of Reporting.

The minimum requirements of the first stage would be name, age, sex, family status, nationality, occupation, diagnosis and some indication of the chronicity of the disease. The International Statistical Classification (1948) would be of great value here. Every participating practitioner would have to be issued with an adjusted copy of it and a recording book or cards, on which he would enter his determinations. For each entry an encouraging clerical fee would be payable. Evaluation might take place every five years in a national health census, utilizing the machinery of the Department of the Registrar-General. To supervise, develop, study and discuss the recording method, all participating local medical practitioners, hospital superintendents and consultants would form regional morbidity committees which would meet regularly with the regional medical officer of health and a representative of the Registrar-General's Department for the purpose of moulding progress. The introduction of further stages would depend on the availability of finance and the results of the study of the experiences in the first stage, locally and elsewhere.

The Therapeutic Stage of Recording.

In this stage more details might be noted, such as the duration of the acute illness or episode or recurrent illness in days; number of attentions required in the surgery and in the home; special investigations, consultations or hospitalization needed; reason for consultation or hospitalization (such as request of patient or relative or absence of nursing services); report sent by hospital at discharge; request by hospital to patient to attend for follow-up investigations; outcome of treatment (cured, improved, stationary, worse or died); if patient died, how long after the first medical attention; other details thought to be necessary.

The Stage of Complete Medical Audit.

It would be necessary to find a simple means to estimate and record, at least approximately, the loss of wages by incapacity, the cost of benefits from any source payable on account of the illness and the cost of drugs, and of medical and hospital attention. This stage would be the most difficult, but a most important one, and there would be plenty of time to organize a suitable method whereby these costs could be calculated and assessed, while the first two stages of the census were under operation.

While technology at present has not yet evolved economic and adequate recording devices for small-scale use and sample studies appear therefore more helpful at this stage, there can be no doubt that the introduction of complete and continuous morbidity recording would, for the first time, put our knowledge of national morbidity on a solid foundation and greatly improve the efficiency

of national health services as well as our real knowledge of diseases.

A Regional Trial.

In order to assess, on a small scale, some of the results that the first or diagnostic stage of reporting might yield, and also to study the additional work involved in the recording, the medical determinations obtained from a one-man practice in a New South Wales coastal district were recorded for three years, from April 15, 1954. The area involved comprised all land east of Karuah on the north shore of Port Stephens, to Mungo Brush on the Pacific coast. In the area covered by the practice there were 980 persons (in the Australian census of 1954), 52%

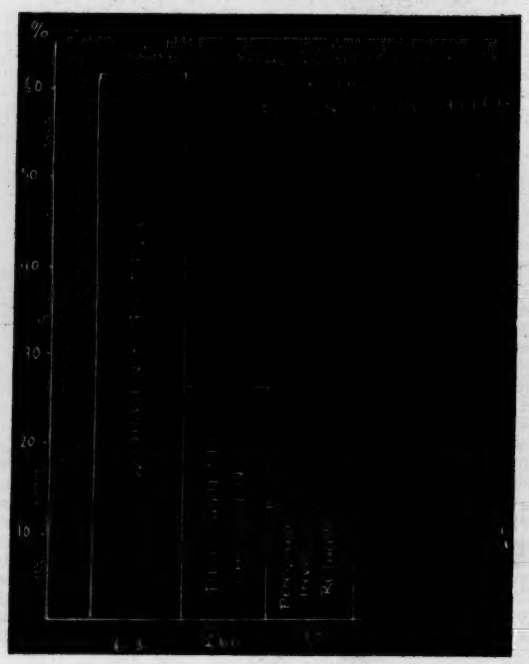

FIGURE I.

of whom were males. Of the patients attending, 856 were local residents and 153 were tourists. The tourists were predominantly male (69%). Of the locally resident patients, 58% were male. Both these proportions were high because 108 patients were employees in the timber trade and 57 of them had suffered accidents. Of the dependent children, 28% were locally resident patients and 15% were tourists. Of all the patients, 60% were males. Of female patients, 60% were married women, most of whom were full-time housewives, 23% were dependent children, 8% were widows and 7% were single or divorced women. Of the 1009 patients, 982 were born in Australia, five in Great Britain and the remainder elsewhere. The birthrate of 19·3 per thousand per annum in the Tea Gardens practice was lower than in New South Wales (21·3 per thousand) or in Australia (22·5 per thousand per annum) for the same years, 1954 to 1956. The composition of the patient population is shown in Figure I.

Morbidity.

The question of a suitable classification of morbidity is still a matter of controversy. The most detailed classification always appears to be the best for single studies, and as a classification widely comparable, the list of three digit categories (detailed list) of the International Classification as set out in Volumes I and II of Supplement I of "The Bulletin of the World Health Organization", has been adopted.

To suit as many viewpoints as possible, this international classification is rather eclectic and has adopted a half-way course between the ætiological and morphological viewpoints, in which some diagnoses are ætiological and some are morphological. Only accidents have a double classification—the cause of the injury and the site of the body. However, as both the morphological and the anatomical viewpoints are of interest, all the cases coded separately and additionally from an ætiological and from a morphological point of view have been grouped together. As this is a record of part of a New South Wales country practice, the special fields covered in this type of practice and to what extent they are covered, have been shown. Hence all cases were coded a fourth time as though they had all been transferred to the specialist concerned with the disease or with the region.

The Ætiological Classification.

Non-specific inflammation and infection are still by far the most common causes of morbidity (Figure II). How many of these uncomplicated healing reactions of the organism are actually infections may be a matter of definitions. Often it seems probable that they are, for instance, in the so-called "flu" epidemics. Much is written

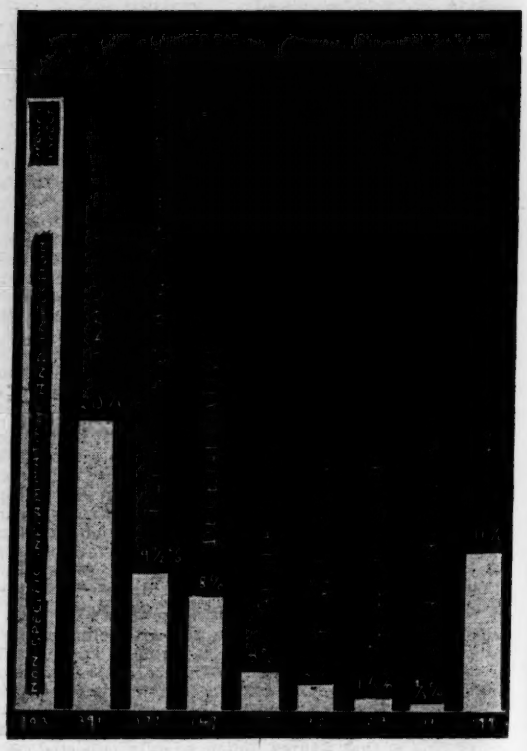

FIGURE II.

about the receding significance of infections, and some textbooks of medicine have become optimistic enough to start no longer with these, but with a chapter on cardiovascular disease. A textbook based on morbidity, perhaps, would be obliged to start with a chapter on "The Unknown Inflammation". We are, however, already able to label some of these inflammatory reactions as "specific" infections.

Trauma is the second most common cause of morbidity, but it is only half as common as the previous one. The innumerable accidents, by which we just miss serious injury in our modern pattern of life and which are so

rarely fatal, play a large part in morbidity. Morbidity recording will put the significance of accident prevention in its proper perspective.

The next most common ætiological cause of morbidity is the psychological group of diseases in which the physical and psychological phenomena are so closely interwoven that it is not possible to separate them. These diseases occur only in humans, not in animals, and are therefore not easy to study by experiments on animals. Jores (1956) has given them the apt title "specifically human". Very few of these diseases need certification, and the patient does not need to be admitted to an institution; very few of these diseases influence mortality figures and yet they are of great social importance and elude, for the most part, our therapeutic efforts.

Degenerative diseases are another cause of morbidity—the chronic ailments of the aged, the degenerative cardio-vascular phenomena, osteoarthritis etc.

Then follow 57 cases of "after effects" of illness or operation. Only 10 of these were post-operative syndromes (about 1% of the population).

The remaining causes are relatively uncommon and are indicated in the appendix. If a patient had a new growth and came for consultation (23 cases), the chances were

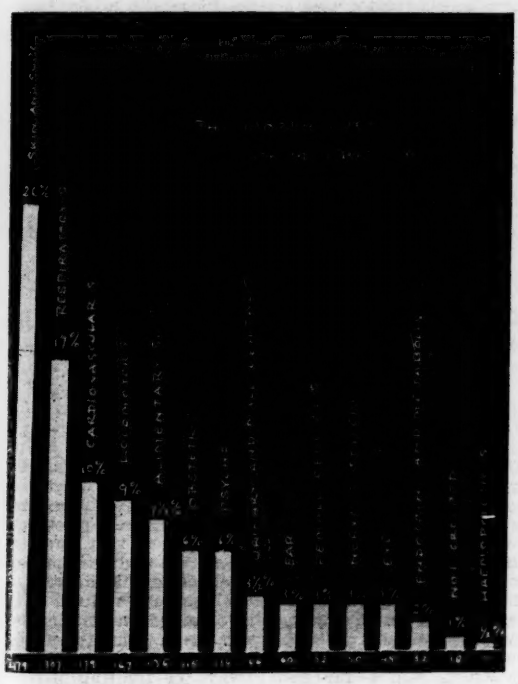

FIGURE III.

even that such a new growth would eventually turn malignant. Last, but not least, it is noteworthy that one in every ten cases cannot be covered by so rough a classification of causes.

The Morphological Classification.

Most of the morbidity here took place on the skin or its underlying tissues, due, however, not to dermatological conditions but to the large number of accidents, mainly in the timber trade (Figure III). This influence also lends the locomotor system its prominence. Otherwise the table presents little novelty. The most commonly affected sites are the respiratory and cardio-vascular systems. The obstetrical morbidity corresponds to the birthrate. The International Classification includes pregnancy and delivery under "morbidity". For practical purposes, pregnancies need to be attended like a disease. The large number of "toxæmias" may be due to the strictness of definition made in the spirit of my teacher, Dixon Hughes of Sydney, whereby I have defined "toxæmia" to mean a rise of diastolic blood pressure to over 80 millimetres of mercury on more than two occasions after the 20th week of pregnancy, with gain of excess weight on at least one occasion, or a rise of the systolic blood pressure to over 130 millimetres of mercury on one occasion. However, it is the strict definition of toxæmia which has contributed so much to the safety of childbirth. If obstetrical and gynæcological conditions were taken together, they would take fifth place.

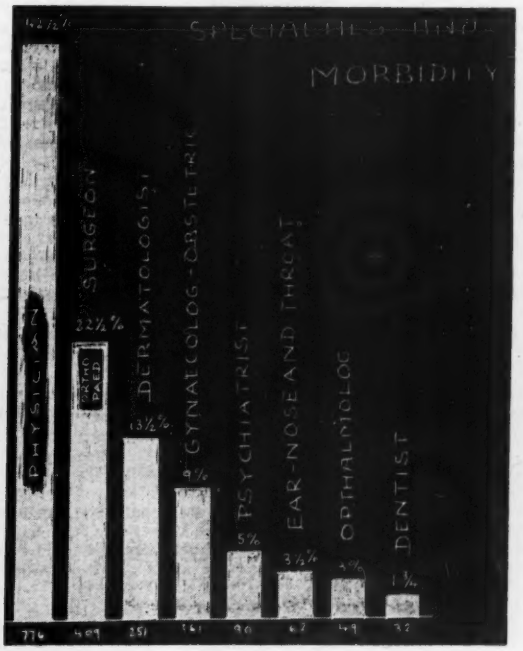

FIGURE IV.

The Classification by Specialties.

Pædiatrics and geriatrics are of great importance (Figure I). To these "specialties in time" are now added the "specialties in function" and in "region" (Figure IV). The dominant role of medicine is evident. However, while the role of surgery is only half the role of medicine in the number of cases, it may well mean a lot more effort in the individual case. Dermatological conditions are next in importance after medicine and surgery, a fact which may have a connexion with the climate and general hygiene in this particular area. Psychiatric conditions have been common. Also infections of the ear, nose and throat have been important, perhaps due to their close connexion with respiratory infections. The 32 cases of dentistry were, of course, all emergencies and were not the type of case which is usually demonstrated in our medical schools. Nearly all of them were dental caries or abscess, with or without one or more tooth extractions.

Summary.

A plea is made for a five-yearly national health census based on continuous recording of morbidity, introduced in three carefully considered stages covering the diagnostic, therapeutic and economic aspects progressively. Ideal requirements for recording morbidity are stated. As an example, the experience in a practice in a New South Wales coastal district with 980 inhabitants was recorded over a period of three years. Results have been presented using

the detailed International Statistical Classification of the World Health Organization, and the diseases grouped, in addition, from various points of view. From a purely ætiological point of view, non-specific inflammation and infections were by far the most common causes of morbidity; other causes were trauma, psychic and psychosomatic ailments and degenerative diseases. Morphologically, the skin, the respiratory tract and the cardio-vascular system were the most common sites of morbidity. Medicine, surgery, dermatology, pædiatrics, and geriatrics were the most important special fields for this type of general practice.

Acknowledgements.

I am greatly indebted to Dr. E. Ford, Professor of Preventive Medicine, University of Sydney; to Dr. Scott and Dr. Lancaster, School of Public Health, University of Sydney; to Dr. R. J. F. H. Pinsent, Birmingham, Chairman of the Research Committee of the Council of the College of General Practitioners; to Dr. J. G. Radford, honorary secretary, Research Committee, New South Wales Faculty of the College of General Practitioners; and to Mr. S. R. Carver, Government Statistician, Sydney, for information, literature and advice.

Appendix.

The International Classification.[1]

I. Infective and Parasitic Diseases (106): 2 (2), 27 (1), 52 (3), 56 (3), 83 (2), 85 Measles (23), 86 (10), 87 (1), 88 Herpes Zoster (13), 89 (5), 92 (4), 96 Bornholm Disease (13), Other 96 (1), 130 (5), 131 Dermatophytosis (11), 134 (1), 135 (8).

II. Neoplasms (23, 12 of which were malignant): 151 (1), 170 (3), 171 (4), 191 (4), 213 (2), 214 (2), 216 (1), 220 (1), 236 (5).

III. Allergic (70), Endocrine (24), Metabolic and Nutritional Disorders (8): 240 (2), 241 Asthma and Asthmoid Bronchitis (30), 243 Urticaria (35), 244 (3), 252 (5), 253 (8), 260 (1), 277 (10), 287 (8), 288 (1).

IV. Diseases of the Blood and Blood-Forming Tissues (11): 290, 2 (1), 291 (6), 299 (4).

V. Mental Psychoneurotic and Personality Disorders: (114): 300 (5), 304 (3), 307 (1), 310 Anxiety State Alone (26), 315-18 Anxiety State with Somatic Symptoms (21), 311 Conversion Neurosis (11), 313 (4), 314 (6), 315 Vasovagal Syncope, Vagotonia (13), 316 Nervous Dyspepsia (11), 317 (2), 322 (1), 323 (1), 324 (1).

VI. Diseases of the Nervous System (33) and Sense Organs: Eye (20), Ear (55), 334 Apoplexy (11), Other 334 (2), 340 (1), 345 (1), 350 (1), 351 (1), 354 Migraine (11), 361 (2), 362 (1), 368 (2), 370 (10), 372 (2), 378 (1), 380 (2), 383 (2), 385 (2), 387 (1), 395 (7), 396 (9), 398 (1).

VII. Diseases of the Circulatory System: (161): 400 (2), 401 (1), 410-13 (6), 420 Angina Pectoris (29), Other 420 (3), 422 Myocardial Degeneration without Congestive Cardiac Failure (18), 433 (8), 434 Congestive Cardiac Failure (36), Other 434 (1), 443 (5), 444-45 Essential Hypertension (13), 453 Buerger's and Raynaud's Disease (13), 460 (9), 461 (10), 464 (4), 466 (2), 467 (1).

VIII. Diseases of the Respiratory System: (222): 475 Acute Upper Respiratory Tract Infections, Involving Multiple Sites (76), 470, 472, 480-83, Upper Respiratory Tract "Infections" Including Non-Specified Influenza, Nasopharyngitis and Tonsillitis (52), 441 Sinusitis (14), 474 (5), 490 (5), 491 Bronchopneumonia (11), 500 Acute Bronchitis (23), Chronic Bronchitis (18), 512-13, Chronic Upper Respiratory Tract Affections (11), 519 (4), 522 (2), 526 (1).

IX. Digestive System (99): 513 Dental Caries (19), 531 (6), 533 (1), 536 (3), 540-41 Peptic Ulcer (22), 544 (2), 550 (3), 560 (8), 573 (4), 578 (9), 581 (1), 584 (2), 585 Cholecystitis (13).

X. Genito-Urinary System (95): 590 (4), 592 (2), 601 (1), 603-5 Cystopyelitis (26), 607 (3), 603 (2), 605 (8), 610 (5), 613 (3), 617 (2), 621 (1), 624 (1), 630 (4), 631 (7), 633 (3), 634 (8), 635 Menopausal Syndrome (12), 636 (1).

XI. Deliveries and Complications of Pregnancies, Childbirth and Puerperium (115): 641 (5), Toxæmia of Pregnancy (36), 644 (3), 648 (2), 650 (4), 651 (4), 660-78 (58), 688 (1), 689 (2).

XII. Diseases of Skin and Cellular Tissue (176): 690, 713, Boil and Carbuncle (44), 691 Cellulitis of Finger and Toe (20), 692 Other Cellulitis and Abscess Including 714 (37), 693 (7), 695 Impetigo (37), 696 (2), 700 (8), 701 (6), 705 (1), 706 (2), 709 (3), 714 (5), 716 (4).

XIII. Diseases of the Bones and Organs of Movement (53): 722 (4), 724 Osteoarthritis (23), 726 (3), 730 (1), 732 (1), 733 (2), 738 (2), 740 (1), 741 (7), 746 (3), 743 (5), 744 (1).

XIV. Congenital Malformations (9): 753 (3), 754 (1), 755 (1), 757 (2), 759 (2).

XV. Certain Diseases of Early Infancy: 772 only (13).

XVI. Symptoms, Senility and Ill-Defined Conditions (68): 782 (9), 783 (3), 784 (4), 787 Backache of Unknown Origin, Slipped Disc Syndrome Responding to Physiotherapy (23), 788 Pyrexia of Unknown Origin (11), 790 (2), 791 (2), 795 Post-Operative After Effects (10), Other 795 (4).

XVII. Accidents, Poisonings and Violence (365): N 807-823 Fractures (34), N 836 (1), N 839 (1), N 840-48, Sprains (31), N 842 Concussion (11), N 870-918 Cuts, Bruises, Lacerations and Abrasions without Foreign Body (132), with Foreign Body (23), Infected (14), N 908 Multiple Wounds (19), N 882 (2), N 920-29 (9), N 961-66 Poisoning (9), N 981 (6), N 987 (1), E 910, E 930 (5), E 914, E 917 (10), E 931 (4), E 927, E 928 Animal Bites and Stings (42).

[1] The code numbers are followed by the number of cases (in parentheses). The diagnosis is shown by words as well as the code numbers only where more than 10 cases have occurred.

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A CLINICAL APPRAISAL OF "SPARINE", "STEMETIL", "TRILAFON" AND "MARSILID".

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So much has now been published concerning the ataractic drugs in medical journals throughout the world that another article can only be justified when it deals with material not previously covered or when a problem is looked at from another point of view. A vast number of articles have dealt with chlorpromazine and reserpine and to a lesser extent with meprobamate, "Frenquel" and "Meratran", yet so far very little has been written in this country concerning the results obtained in patients who have been treated by what are at present regarded as newer psychotherapeutic drugs. This article describes the continuing search for better ways of treating psychotic patients in a mental hospital setting, for it is our belief that drug therapy intelligently applied is the best and ultimately the most economical way of treating mental illness. These drugs have to be combined with psychotherapy for the best results, but even when used by themselves they are of inestimable value.

When tranquillizing drugs were first introduced to this hospital the results were similar to those achieved at the Mental Hospital, Parramatta, in 1954-1955 (Morgan, 1956), only this hospital had a greater preponderance of deteriorated patients classified as suffering from secondary dementias. It has been most stimulating to see patients previously regarded as having a hopeless prognosis achieve a social remission of their illness and return to the community on maintenance therapy. This hospital receives acutely ill patients from the whole of the south and south-western portion of New South Wales, but remaining in the wards for chronic patients are those who have been

admitted over a period of many years and who, as a result of therapy in the past, have achieved only an improvement short of leaving the hospital. It has been a continuing endeavour on the part of the authors to leave no drug untried which might help these unfortunate people.

This article is, in a way, a progress report, and at a later date results of newer drugs at present undergoing clinical investigation in this hospital will be published. It will be noted that no attempt has been made to carry out double blind studies, and such studies are subject to so many variable factors and indeed criticism that we have abandoned them.

In a paper on 2-dimethylaminoethanol presented at the meeting of the Association for Research in Nervous and Mental Diseases in New York on December 12, 1957, Murphree, Jenney and Pfeiffer give reasons for not using controlled studies of new drugs in the first instance as follows:

> 1. The trial of any new drug in man must establish the safety and the effective dose before a double blind experiment can be initiated.
>
> 2. Since any new therapy is biochemical pioneering the possibilities exist that clues to side actions and interpretable symptoms in the patients might be missed by a "doubly blind investigator".

And again Loomer, Saunders and Kline in their monograph on iproniazid (1957) make the following observation:

> As this was a pilot experiment no attempt was made to use double blind or placebo techniques. The utilization of elaborate format is pointless until there is some evidence that the medication is active and until dosage range has been determined. In point of fact, the acceptance of improvement as being drug-related is not so naive as may appear on the surface since two-thirds of the group had received one or more courses of drug therapy with other pharmaceuticals and failed to show such change. Both the patients and the psychiatrist were therefore familiar with such techniques and there existed no greater enthusiasm as to the potentialities of this treatment than with numerous other medications. Since among the hospitalized group only well established subjects were chosen, the patients could truly be said to have acted as their own controls.

We believe the same situation exists in this hospital, where in the last twelve months so many new drugs have been introduced for clinical appraisal that the techniques are now quite familiar to both staff and patients.

In order to compare and contrast the symptomatology of our patients it was found necessary to establish a clinical profile, which described the patient in a manner which would enable a valid statistical assessment of his response to a certain drug to be made. It appears that there is no psychiatric profile which is generally accepted throughout the world, and each investigator merrily invents his own. It seemed to us that, for our results to be comparable say with those achieved in the United States, a standardized profile would be of inestimable benefit, and perhaps at a World Psychiatric Congress in the near future such an internationally acceptable profile might be decided upon so that descriptions of patients' symptomatology might be more nearly uniform from one part of the world to another. Our compromise in this situation was to modify very slightly the psychiatric profile suggested by Rinaldi, Rudy and Himwich in 1955.

By using such a profile it is possible to take a certain symptom and discover what particular drug appears to have the most beneficial effect. We have done that and in the main the results have borne out what were our own clinical impressions at the time. Obviously, in a small hospital such as this, with 1050 beds and an admission rate of 500 patients a year, of whom nearly half are committed under the *Inebriates Act* for excessive alcoholism, we have not the patients necessary to give large numerical samples, and our statistical table (Table I) is offered not because we feel it is a fine example of statistical truth but because it offers a clear picture of the results we have obtained. We have used the three self-explanatory categories to describe our results—unimproved, improved and recovered—and those patients shown in the last category have actually left the hospital.

We have found that the more new drugs have become available, the less has been the need to resort to electroconvulsive therapy, and in the past twelve months only five patients have received a total of seven treatments. All these patients were acutely depressed, and it was essential that, as a life-saving measure, the patients be rapidly helped to a stage where they could cooperate with the staff and drugs could assist in their recovery.

Our three problems therapeutically have been: (i) to treat patients in acute confusional states, usually alcoholic in origin and usually delirium tremens; (ii) to treat patients with acute psychotic mania and depression; (iii) to treat in our hospital acutely and chronically ill patients suffering from the various shadings of schizophrenia.

"Sparine."

We have found the drug of choice in treating patients in acute confusional states to be promazine ("Sparine"), and this for several reasons. Promazine can be given readily by injection either intravenously or intramuscularly with very little local tissue irritation, and even when given in large doses it produces little or no hypotensive effect. These are very distinct advantages as compared with chlorpromazine, for this latter drug, especially in older patients, frequently causes such a fall in blood pressure in the first few weeks of therapy that they are liable, when ambulatory, to faint and fall, thus injuring themselves. Another advantage of "Sparine" is that it is virtually free from sensitivity side effects; we have seen no skin rashes of any kind either in the patients or, what is just as important, in the staff handling the drug; and we have not seen a single case of jaundice occur in patients receiving promazine.

However, we found that, to attain the same clinical result as one would achieve with chlorpromazine, it is necessary to use approximately a quarter more by weight of "Sparine", but this seems to us to be only a minor disadvantage. It should be noted that the five patients who are described as being in toxic and confusional states (Table I) were in actual fact all suffering from delirium tremens, so that their ultimate recovery might be anticipated in any case. The remarkable advantage in treating this condition with "Sparine" is that the patient becomes rational within a matter of a few hours, and therefore is no longer an acute nursing problem. As a consequence no useful purpose is now served in sending patients with delirium tremens to a reception house or to a mental hospital, when such patients can be treated safely and easily in a general hospital by any competent doctor.

"Stemetil."

"Stemetil" is May and Baker's trade name for their brand of proclorperazine, which is also known as "Comparzine" in the United States. This drug is another phenothiazine derivative originally synthesized in France and first called RP6140. "Stemetil" has given remarkably encouraging results in certain cases of migraine and as an antiemetic; but in our experience, although effective in the treatment of psychoses, there is nothing that this drug will do that other phenothiazine derivatives will not do better in this field. It is supplied as 25-milligramme tablets, and we have used "Stemetil" to a maximum of 200 milligrammes per day. On this dosage there have been virtually no side effects beyond the customary Parkinsonian-like symptomatology, which occurs so commonly when using ataractic drugs. When used to treat migraine we have found one to four tablets of five milligrammes twice a day effective in most cases.

"Trilafon."

"Trilafon" is yet another phenothiazine derivative and is the trade name of the Schering Corporation for their brand of perphenazine. This drug has given by far the most encouraging results in our hands of any ataractic drug we have used so far, and consequently has become our drug of choice in the initial treatment of patients with acute psychoses—especially those with schizo-affective components. Because of this opinion we are gradually checking the treatment schedules of the chronic long-

TABLE I.

Factor.	Recovered Patients.				Improved Patients.				Unimproved Patients.			
	"Sparine."	"Stemetil."	"Trilafon."	"Marsilid."	"Sparine."	"Stemetil."	"Trilafon."	"Marsilid."	"Sparine."	"Stemetil."	"Trilafon."	"Marsilid."
Treatment (Weeks):												
1	2	2	2	—	—	—	3	—	—	1	4	—
2	1	—	2	1	—	—	3	—	—	—	3	1
3	—	—	4	1	—	—	6	1	—	1	8	—
4	—	—	1	2	1	—	2	1	2	—	2	1
5	2	—	3	2	—	—	4	1	—	—	—	1
6	2	—	1	1	1	—	2	1	—	—	—	—
7	3	—	2	3	1	—	2	—	—	—	—	—
8	—	—	1	1	—	—	1	—	1	—	—	—
9	1	1	1	—	—	—	—	—	—	—	—	—
10	—	—	—	—	—	—	—	—	—	—	—	—
11	—	—	—	—	—	—	—	—	—	—	—	—
12	—	—	—	—	1	—	—	—	—	—	—	—
Diagnosis:												
Manic-depressive psychosis-mania	3	—	2	—	1	—	2	—	—	1	—	—
Manic-depressive psychosis-depression	—	—	2	8	—	—	3	3	—	—	3	2
Schizophrenia and schizo-affective psychosis	3	1	8	—	2	—	10	1	1	—	10	1
Paraphrenia	—	—	—	—	—	—	1	—	—	—	3	—
Confusional and toxic states	5	2	3	—	—	—	1	—	—	1	—	—
Epilepsy	—	—	1	—	—	—	—	—	—	—	—	—
Congenital mental deficiency without epilepsy	—	—	1	—	—	—	3	—	—	—	1	—
Senile dementia	—	—	—	—	1	—	1	—	1	—	—	—
Neuroses	—	—	—	3	—	—	2	—	1	—	—	—
General state:												
Acutely ill patients	6	3	11	3	2	—	5	1	2	1	2	1
Patients in acute phase of chronic condition or recurrently admitted to hospital	5	—	5	5	2	—	6	2	—	1	5	2
Chronically ill patients	—	—	1	—	—	—	10	1	—	—	10	—
Neurotic patients	—	—	—	3	—	—	2	—	1	—	—	—
Total dosage per day (milligrammes):												
8	—	—	1	—	—	—	—	—	—	—	—	—
12	—	—	2	—	—	—	1	—	—	—	3	—
16	—	—	3	—	—	—	7	—	—	—	3	—
24	—	—	3	—	—	—	6	—	—	—	8	—
32	—	—	8	—	—	—	9	—	—	—	3	—
100	—	1	—	—	—	—	—	—	—	—	—	—
150	1	1	—	10	—	—	—	4	—	—	—	3
200	1	1	—	—	—	—	—	—	—	1	—	—
225	1	—	—	—	—	—	—	—	—	1	—	—
300	3	—	—	1	2	—	—	—	1	—	—	—
400	2	—	—	—	1	—	—	—	1	—	—	—
450	3	—	—	—	—	—	—	—	—	—	—	—
600	—	—	—	—	—	—	—	—	1	—	—	—
1200	—	—	—	—	1	—	—	—	—	—	—	—
Previously on other drug treatment	5	1	8	5	—	—	15	1	—	—	12	1
Treated only with this drug	6	2	9	6	4	—	8	3	3	2	5	2
Discharged	6	3	6	8	—	—	—	1[1]	—	—	—	—
Employed in hospital	5	—	9	3	3	—	15	2	1	2	2	—
Idle	—	—	2[4]	—	1[4]	—	8[4]	1[4]	1	—	15	2
Died	—	—	—	—	—	—	—	—	1[2]	—	—	1[3]
Total	11	3	17	11	4	—	23	4	3	2	17	3
Grand total	42				31				25			

[1] Voluntary patient discharged at own request.

[2] Myocardial degeneration, arteriosclerosis, senility.

[3] Pulmonary œdema, myocardial degeneration.

[4] Idle by age.

term patients in the hospital, many of whom have been on chlorpromazine for several years, in order to discover if "Trilafon" will succeed in resocializing additional patients where chlorpromazine has merely tranquillized their behaviour. It is too soon to be dogmatic in this vast treatment complex, but already we have had several encouraging results.

"Trilafon" is supplied in four-milligramme and eight-milligramme tablets, the maximum dosage we have used being 64 milligrammes per day. However, our experience has shown that when patients receive over 32 milligrammes per day they quickly develop extra-pyramidal symptoms and Parkinsonian-like side effects, which disappear when the dosage is therapeutically reduced. There have been none of the sensitivity side effects so often seen with chlorpromazine, and patients seem to prefer "Trilafon" to chlorpromazine when given the choice. This is particularly important in female patients, many of whom gain an embarrassing amount of weight on chlorpromazine, but when using "Trilafon" the gaining of undue weight has not been a problem.

Perhaps the most outstanding feature of "Trilafon" therapy is the at times dramatic gaining of insight and appropriate judgement in the previously psychotic patient.

In those patients who achieve a favourable response to "Trilafon", the drug promotes a clarity of thought and a clear understanding, which rapidly causes thinking to become appropriate and logical, and patients to become calm and cooperative. Also when this drug is combined with psychic energizers such as "Ritalin" and "Marsilid", the amelioration of psychotic depression seems more rapid than with any other combination of drugs we have used so far.

Finally, before leaving the subject of phenothiazine derivatives, or neuroleptics as they are sometimes called (Deniker, 1956), although very few untoward side effects with the above-mentioned drugs and no evidence of blood dyscrasias have been observed, these latter are always a potential hazard when using any phenothiazine derivative, and this is only one of the reasons why mepazine is no longer used in this hospital; that is to say, although mepazine is at times an effective drug, it shows a high incidence of unpleasant side effects, and our experience has shown that other drugs are at least as good or better in treating patients with psychotic illness.

"Marsilid."

Nathan Kline at Orangeburg first drew attention to the potentialities of iproniazid ("Marsilid") for the treatment of depression, and he coined the phrase "psychic energizers" to describe the psycho-analeptic drugs which include "Meratran" and "Ritalin" as well as "Marsilid". Following previous work (Morgan, 1957), a constant watch was kept for drugs which when combined with a suitable phenothiazine such as "Largactil" or "Trilafon" would ameliorate depression. The status of "Meratran" and "Ritalin" is well summarized in a recent publication (Fabing, 1957), in which it is pointed out that their action is relatively mild, and hence the drugs are only a partial answer to the drug therapy of psychotic depression. We have found "Marsilid" when combined with "Trilafon" to be a definite advance in this field, but even so it is not, we believe, a complete answer, and at present two new psycho-analeptic compounds are undergoing investigation.

"Marsilid" is the trade name of Roche Products for their brand of iproniazid, which is a derivative of iso-nicotinic acid hydrazide, so well known in the treatment of tuberculosis. However, "Marsilid" is more toxic than INH, and its use requires close medical supervision according to the manufacturers, and attention is drawn to recent overseas reports of toxic effects in both the liver and the kidneys upon prolonged administration. Actually, in our hands and in the dosage used we have noted no side effects at all that have warranted a discontinuation of the drug, the maximum recommended dosage we have used being 50 milligrammes thrice daily. However, it is of interest that one of our patients who was on leave from this hospital on a maintenance dosage of one tablet daily decided she would feel better if she took 10 tablets daily. At the end of the third day she was returned to the hospital acutely manic, but showing no other side effects at all. It has been mentioned that bladder incontinence and paræsthesiæ in the legs occur in patients taking doses over 150 milligrammes daily, but we have not observed these side effects.

To illustrate the action of the drugs on individual patients we have given for each particular drug some brief clinical profiles.

Clinical Profiles.

"Sparine."

CASE I: Recovered.—A single male, aged 29 years, a migrant now seven years in Australia, was admitted to hospital because he was in constant fear of being killed, and entertained the idea that inside the hospital this may be done by the police. He was wary of food and hospital routine, because this to him was evidence of murderous intentions on the part of the staff. He had an acute schizophrenic episode in 1955. At that time, whilst receiving electroconvulsive therapy, he developed a seminoma of the testis and later, after consulting a physician in private practice, he linked the occurrence of the tumour with the electroconvulsive therapy he had so recently received, and this belief became the basis of a subsequent claim for compensation. He persisted in this claim, and when asked routinely about his religion he felt sure people were going to kill him. At the time he was put on "Sparine" his psychiatric profile was as follows: hypoactive, tidy, reticent, slowness of thought, delusions of persecution, paranoid ideas, fairly marked dissociation, heard people talk about him, tense, hostile, poor ward adjustment, idle, no capacity for critical judgement.

He received "Sparine", 100 milligrammes thrice daily. His activity returned to normal in the third week. He lost his reticence in the sixth week, and in that week the slowness of thought also disappeared. Delusions and hallucinations and paranoid ideas disappeared in the seventh week, and his dissociation then left him completely. He was relaxed, became friendly, adjusted well to the ward and was occupied. He regained full capacity for critical judgement in the seventh week.

CASE II: Improved.—A single man, aged 31 years, was admitted to hospital because he was found standing for long periods in the public street, in one position, jerking his head and talking to himself. He repeated the same performance in church in the middle of a service. His history goes back to 1949, with admissions to mental hospitals in 1950 and 1955 also. On his first three admissions to hospitals he received electroconvulsive therapy. He gradually became preoccupied by voices of people who were there to control mankind, actually "God's voice", and he developed the idea that if time could be measured we would probably have eternal life on earth. On his admission to hospital he was dull, slow, foolish, hesitant in speech, unable to carry on a conversation, irrational, apprehensive, agitated, pompous, involved, abstract, theorizing, cagey, suspicious, circumstantial and delusional about wireless messages.

He was put on "Sparine", 200 milligrammes thrice daily. At the end of the twelfth week his activity was fair, mannerisms and impulsiveness were gone, talk had improved away from the abstract. No delusions or hallucinations could be detected, and he evinced interest in his surroundings. He became occupied, and his capacity for critical judgement became fair; however, strong paranoid ideas remain, which prevent social rehabilitation so far.

CASE III: Unimproved.—A single man, aged 32 years, a migrant now in Australia for six years, was admitted to hospital because he had made a public nuisance of himself by persisting in not working and watching a married woman who, according to him, needed his protection. He started off in a fairly stable employment pattern, but slowly retreated from reality, becoming increasingly involved in this woman's affairs. He became a vagrant in order to watch and protect her, was convicted for vagrancy, but held that everybody was wrong and that he should dedicate his life to watching this woman; "God" forbade him to work. When put on "Sparine" his clinical profile was as follows: hypoactive, manneristic, impulsive, tidy, hesitant in speech, slow of thought, massive ideas of reference, somewhat incoherent, illogical, incongruous, heard "God's voice", tense and only little interested in his surroundings, withdrawn and only fair ward adjustment.

He was put on "Sparine", 100 milligrammes four times a day. The daily dosage was gradually increased to 1200 milligrammes, but his condition remained the same. This patient was then put on eight milligrammes of "Trilafon" four times a day. After eight weeks he improved in activity, talk, thought, mood and social and interpersonal relations, but basically he remained the same.

"Stemetil."

CASE I: Recovered.—A married man, aged 29 years, was admitted to hospital because he had suddenly noticed that all his workmates were against him and that there were notices displayed all over town and along the roads warning people against him. He could also taste poison in his tea, and he suspected his wife of putting it there. His psychiatric profile was as follows: reserved, hypoactive, impulsive, slow in thought, massive delusions and paranoid ideas, dissociated, visual hallucinations, depressed, tense, suspicious, withdrawn, no ward adjustment, idle, no capacity for critical judgement.

He received "Stemetil", 50 milligrammes thrice daily for nine weeks, and made a complete clinical recovery.

CASE II: Unimproved.—A single man, aged 21 years, was admitted to hospital because he was found by the police to be acting strangely, and he turned out to be an escapee from a metropolitan mental hospital. His psychiatric profile was as follows: overactive, manneristic, tidy, loquacious, flight of ideas, fairly integrated, very elated, irritable, somewhat hostile, poor ward adjustment, no insight, no planning ahead, disturbed sleep, big eater.

He was placed on "Stemetil", 75 milligrammes thrice daily for three and a half weeks, but remained unchanged. He has since returned to his former hospital.

"Trilafon."

CASE I: Recovered.—A single man, aged 35 years, was admitted to hospital in a mute state. He moved his hands in a symmetrical manner and stayed for minutes in odd postures. On questioning he gave no verbal response but nodded, now and then giving the impression that he understood what was asked. Three months previous to his admission to hospital he had suffered an injury to the back of the head and had started to act strangely, doing the opposite to what he was told to do at work. Finally, he refused to leave his room and would not eat, and this led to his admission to this hospital. Because of difficulty with feeding he was given one electroconvulsive treatment. His psychiatric profile then was as follows: hypoactive, tidy, mute, poor and slow in thought, delusions of persecution, paranoid ideas, fairly dissociated, auditory hallucinations hearing "God's voice", depressed, tense, lack of interest, friendly, autistic, fair ward adjustment, idle, no insight, no understanding of reality, no planning ahead.

He was given "Trilafon", eight milligrammes four times a day, and at the end of the first week had returned to near-normal, and was completely normal at the end of the second week. He recognized his behaviour as being abnormal, but could give no explanation for it. In the third week his treatment was tapered off to four milligrammes of "Trilafon" thrice daily, and treatment was stopped at the end of the fifth week.

CASE II: Improved.—A single female, aged 36 years, has been for 11 years in the care of the Department of Public Health in several mental hospitals. At the start of her treatment with "Trilafon" she was overactive, manneristic, impulsive, untidy in dress and appearance, destructive, continually reading an imaginary book, saliva drooling from the mouth, poverty of thought, answering voices, incoherent, illogical, bizarre, tense, irritable, lacking in interest, highly withdrawn, negativistic, poor ward adjustment, idle, no capacity for critical judgement, faulty in habits.

The patient received "Trilafon", four milligrammes thrice daily. At the end of the second week talk was normal, but thought remained poor. Withdrawal and negativism disappeared, and she became occupied. Hallucinations were not observed after the third week; she became relaxed and placid, and took interest in her surroundings. At the end of the fifth week she started to care for her appearance, and her destructiveness had ceased. In the sixth week she had lost all mannerisms and impulsiveness. Her activity improved and became normal in the seventh week. Her faulty habits improved to near-normal, but capacity for critical judgement remained poor.

CASE III: Unimproved.—A married female, aged 49 years, has been for 22 years in mental hospitals. She has developed into a dull, foolish, destructive, irresponsible, incoherent, resistive, agitated and faulty patient, practically always in restraint. Continual electroconvulsive therapy, sulfonal, "Largactil" and "Serpasil" were tried in turn and combined, without change. She has massive hallucinations about hearing "God's voice", has created tetanus germs and calls herself a doctor. There is severe hereditary loading.

She received eight milligrammes of "Trilafon" four times a day, and after three weeks there was some improvement in activity, destructiveness and hostility and ward adjustment, but on the whole the patient remains the same.

"Marsilid."

CASE I: Recovered.—A married man, aged 41 years, was admitted to hospital because he suddenly doused his house with petrol, and only in the nick of time was prevented from putting the match to it. He ran around shouting and seemed unaware of the consequences had he succeeded. He had a history of recurrent manic depressive psychosis with anxiety features during the last 10 years, and in the past two months had developed persecutory ideas, heard voices and withdrew from company. He received 25 milligrammes of "Largactil" thrice daily during this period. Electroencephalograms were taken, but he said "the doctors only gave a weak explanation". His psychiatric profile was as follows: hypoactive, impulsive, tidy, suicidal, fragmentary speech, slow in his talk and in thought, delusions of plotting against him, at times incoherent, illogical and incongruous, heard voices, depressed, tense, unfriendly disposition, no ward adjustment, idle, insight nil, understanding of reality only fair, no planning ahead, sleeping and eating only fair.

He was put on "Marsilid", 100 milligrammes thrice daily, and at the end of the second week a radical change had set in, necessitating reduction of the tablets to nil because it was feared that he might drift into a hypomanic state. He was given 200 milligrammes of "Largactil" *nocte* instead, and two weeks after the change in medication he was able to leave the hospital.

CASE II: Improved.—A married male, aged 47 years, was admitted to hospital because he had stopped eating for a week, wanted to confess sins and considered he was unworthy to live, as he had cheated one stroke at golf! He considered that his life and thinking were one of unforgivable sin and that he should end it all. Because of his refusal to take food, he received one electroconvulsive therapy and then was put on "Marsilid", 150 milligrammes daily. After five weeks his activity was normal, there were no suicidal ideas, talk had improved, thought production was quickened, no delusions or paranoid ideas could be detected, integration improved, no withdrawal was evident, he had friendly interest in his surroundings, good ward adjustment, and was occupied. However, the patient one day disclosed that he was worried about the effect it would have on earth if there were no toilets in heaven. This was easily dispelled by discussion, and the patient fully appreciated the humorous side of this supposition. However, it showed that fundamentally he was still preoccupied. His former attack had been in 1952, and remission was then obtained by electroconvulsive therapy. He was a voluntary patient and left on his own request.

CASE III: Unimproved.—A married man, aged 65 years, was admitted to hospital because he was depressed, was slow in action and speech, had suicidal tendencies, refused food, was worried about work and his pension, and said that he was a disgrace to his family. His blood pressure was 120/75 millimetres of mercury. There was marked loss of weight. He made two suicidal attempts by hanging. Five years earlier he had been acutely depressed when faced with a tax lag. He overcame it, but lately ate less and less, banged his head against the wall and remained sleepless.

He was put on "Marsilid", 50 milligrammes thrice daily, and this was persisted with for eight weeks. After this period he had improved in talk, there were no hallucinations, and sleeping and eating improved, but otherwise he still remained morbidly depressed.

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REVISING THE PATIENT'S DAY IN A MENTAL HOSPITAL.

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Receiving House, Enfield, South Australia.

THIS paper is concerned with the manner in which Enfield Receiving House, a hospital for the reception and treatment of a wide variety of patients with mental illness, is approaching the task of moulding the environment into a therapeutic instrument.

It is widely recognized that a patient, on admission to a mental hospital, enters a highly specific environment, in which he is apparently denied responsibility for his own behaviour. Alternatively, the environment may be thought of as one in which the patient is protected from himself. The hospital environment is of such a nature that the patient must make far-reaching adjustments to cope with it at all, and on discharge these skills that he has learnt may not help him to readjust himself to his old environment. Therapeutic benefit may follow modification of the patients' daily life in the mental hospital.

Historical Antecedents.

In the past there has been a tendency for hospitals to see their function as mainly custodial, but this view is now being replaced by one in which the primary emphasis is therapeutic, with the custodial care often relegated to other agencies (Cawte, 1957). In addition to any possible therapeutic effects of custodial care, a mental hospital offers the definitive therapies to its patients. These include individual psychotherapy, drugs and shock. However, over recent years there has been a rediscovery of the therapeutic value to the patient of living in a controlled environment, in which emphasis is placed upon the deliberate use of inter-personal relations towards recovery.

Social relearning can best be effected in an environment which differs as little as possible from that of the society from which the patient comes. The implementing of this principle implies many changes in the way in which mental hospitals operate. Staff at all levels must relinquish some of their authoritarian and custodial behaviour, replacing it with dual roles as educators and supervisors.

In short, the aim within a mental hospital should be the establishment of a therapeutic community. The "therapeutic community" does not stand for therapy of a community, any more than group therapy is therapy of a group. As the pioneers of group therapy, including Slavson (1947) pointed out, it is the individual, and not the group as such, who remains the centre of the therapist's attention. The group is merely a means of activating patients and supplying the kind of experience that may help to modify attitudes. The group is a treatment tool rather than a treatment focus. The term "therapeutic community", as used by Maxwell Jones, implies that responsibility for treatment is not confined to the trained medical staff. Under the doctor's guidance, treatment becomes a concern of the other community members—patients as well as nursing staff and attendants.

Jones's experiment in social rehabilitation (1953) has become a significant feature of psychiatry in England. His methods entail, among other things, dissolving the traditional doctor-nurse-patient hierarchy. The patient is elevated in status and responsibility, the nurse becomes a social therapist and the doctor's authority is latent rather than manifest. The patients are not "treated" in the ordinary sense, but are integrated into a social structure which they themselves are obliged to control. Models of social adjustment are presented to the patients through the contacts and clashes of everyday living.

The clinical observation that patients who experienced a communal social life improved more rapidly than patients in private rooms encouraged Semrad and his colleagues in Boston (1951) to study the problem of developing practical and effective communal life with psychotic patients. By definition, communal life with psychotic patients is hard to achieve, so that Semrad's additional problem was to overcome the anxiety of the therapists who wanted to achieve it.

Martin and Glatt (1954) discerned other forces that make communal life hard to achieve. There was first the tendency to relieve the patient of all responsibility for himself, so that he ceased to be aware of the need to deal with his problems seriously, and secondly there was an authoritarian staff-patient relationship, which, however benevolently intended, required an attitude of submission by the patient. Submission leads to a loss of initiative and to "institutionalization". Both patients and staff may become "institutionalized".

This has led to a new view of the social structure of the hospital. Associated with this revival of interest in the management of chronic psychotics has been a more realistic idea of the limitation of physical treatment such as insulin or leucotomy.

The Initial Procedure.

Having established the precedents upon which we have worked, it is well to consider the changes that have been made in the early stages of introducing *milieu* therapy at Enfield. It should be stated that no direct claims are made that these changes will in fact be therapeutic for given individuals. Observation would suggest that some people have shown definite improvement, and this may be attributable to the altered environment; generally disturbed behaviour has been seen to decrease, and the amount of sedation required at night has been halved. But the directly therapeutic effects on individual patients needs more systematic study.

Because the patient and his needs is the focus for a therapeutic community, the changes that have been introduced will be considered from the point of view of the patient's day. The patient's day used to be a very ordered affair. He was roused at 7 a.m. and supervised in getting dressed and toiletted; he was involved where possible in cleaning the ward and then preparing for breakfast at 8 a.m. After breakfast more chores were dealt with by some, while others moved to the day room or airing court, where certain limited activities are at their disposal, such as bowls, cards, reading, sitting and talking, or just sitting. Others might be out in the grounds involved in gardening. One attendant was in the court to provide the patient's only formal communication with the staff. This communication was minimal and unsystematic.

Interviews with the doctor were of a very limited nature. On the patient's admission to hospital there was an interview aimed at establishing a diagnosis, for which certain definitive therapies may have been prescribed. Subsequent interviews were used to evaluate the response to therapy, and the patient's general progress. Infrequently, more formal psychotherapeutic interviews would be given.

After lunch the afternoon passed much as in the morning, except for three hours a week for visitors. At 6 p.m. in the admission ward the patient would undress, his clothes would be locked away and he would immediately go to bed in a locked dormitory or room. Convalescent patients might stay up until 9 p.m. Patients took no part in any other organized activity. They were not encouraged to take any interest in other patients. In fact they would be deliberately shielded from disturbed people. Their movement in the main ward was always restricted and supervised. In the convalescent ward they had the freedom of the grounds during the day. Interchanges between patients and nursing staff were therefore restricted to authoritarian interventions.

In this routine it will be seen that every patient has been treated in the same manner as the most disturbed patient, with little recognition given to the differing needs of individuals. Responsibility for all of a patient's behaviour was removed from the individual concerned and given to his custodians, and dependency upon them was enforced. This then was the fundamental situation that has been changed, and the changes that have been introduced have been directed at fostering improved communication.

The chief problem in effecting changes lay in the fact that they comprise what might be called a democratic attitude, and this could not be authoritarianly imposed. One could not very conveniently issue an order that the hospital become more democratic. Another difficulty was related to the timing of changes: the hospital was ripe for some changes, but not ready for others, and we hesitated to try out changes that might not work. The initial procedure was thus a simple one, with the institution of a 9 o'clock meeting of all patients and staff every day. This is the procedure described by Wilmer (1956). At these meetings there was to be no fixed agenda, procedure or aim. We were concerned to

see what would present as the most urgent needs of the hospital. After the 9 o'clock meeting, at 9.45 a.m. the staff remained and discussed the meeting for 15 minutes. Then once a week there was a meeting of all staff. This was called a policy-making meeting, and the staff were free to raise for discussion any hospital topic. The staff meeting proved to be so valuable that it soon became a twice-weekly meeting.

Changes have been introduced through these meetings, but within a meeting the methods of making decisions about changes have been those of the Quakers' business meeting. These methods include unanimous decisions with no voting, no minority to nourish grievances and prevent a real settlement, a moratorium or cooling-off technique, participation by all and the absence of authoritarian leadership.

Early in the history of the 9 o'clock meeting it was noticed that many domestic topics were being raised. These could have been dismissed as resistances, but it was thought that they had some basis in reality. Instead of continuing to deal with these kinds of problems at the 9 o'clock meeting, the patients were encouraged to meet together one evening a week as the "Patients' Government". The staff does not attend these meetings, and a chairman and secretary are elected from the patients themselves. Decisions are conveyed formally by letter to the deputy superintendent, who replies through a letter which is read at the next meeting of the Patients' Government. These meetings have been the avenue of suggesting changes in the time of going to bed, the provision of supper, arrangements for shaving and so on. An indicator of the success of these meetings is the fact that after seven months of their operation, fewer suggestions are being brought forward, although the meetings continue to be held. The Patients' Government considered questions of recreation, and a further committee was set up. This was a committee of both men and women patients, with some staff participation, and they assumed the task of arranging evening socials and games evenings, as well as being concerned with the provision of more active outdoor games.

Specific Changes.

Specific changes have, therefore, been made in the hospital through the 9 o'clock meetings. These changes fall into two classes. There are those changes that follow directly from suggestions made at the meetings, and there are those that were anticipated but have been presented to the hospital through the patients' meetings. By introducing changes in this way, patients and attendants are more closely identified with them, and they do not simply become "orders sent down". Handicrafts sessions with both sexes present, later going to bed, supper, the carrying of money for buying amenities, daily visiting by relatives and friends, are all changes that have been raised in the community meetings. With a recognized and accepted manner of presenting problems of this nature, patients are enabled and encouraged to exercise responsibility for their own behaviour and welfare.

The 9 o'clock meetings also serve the purpose of transmitting information of a more general nature. When this information is given, the nature of the meetings enables the patients to discuss it fully and in this way to clarify any misconceptions that they may have. In an organization that functions hierarchically, information may or may not find its way down. The group discussed, for example, a patient who jumped from the roof of the administration building, and discussions have centred around certification and what it implies, the frequency of visiting, and the nature of mental illness.

Within any group there are bound to be tensions developing between individuals, and in the hospital in the normal course of events these are not allowed expression. The 9 o'clock meeting gives an opportunity for these tensions to be raised and discussed safely. Problems of swearing, smoking and shaving have all been raised as well as the implications of fights (either actual or threatened). The meeting serves not only to uncover these tensions, but also conflicts between patients can be safely and directly expressed within the group. Both religious and social class differences have been handled in this way.

On admission to the hospital, patients must learn to make adjustments to the new environment. The meetings serve to introduce patients to the new environment, and they can use the group to obtain information, should it be needed. This information is usually given by another patient, and those who disagree with the explanation provided can readily give their version. This shows the staff very readily how the patients see their own situation. Having adjusted to the hospital, a patient then begins to look to his adjustment to the wider society outside the hospital again, and the group meetings are of value here. When actively disturbed patients are introduced to the group, they have occasionally made quite startling use of the group, and the group has reacted to the disturbed behaviour with overpowering success in controlling it. There seem to have been some patients who gain insight each time the meeting is used in this way. Furthermore, some contact with social reality can be maintained through the use of the group. This applies even to patients showing excited behaviour of manic or catatonic varieties, which proved to be more accessible to social influence than we had expected.

With the 9 o'clock meeting as the focus of changes, the trend in the hospital is towards the provision of a cheerful, friendly and comfortable setting that resembles as closely as can be the family and community life outside the hospital. An improved adjustment cannot be made to the "normal" society if the mentally ill person is taken from the open society into a special and very different mental hospital society, and then expected to adjust to the open society when he is "better", which may often mean "when he can function well in the new environment". The hospital should therefore be as much like the outside community as is can be.

The Staff Reaction.

But these changes cannot be achieved by the patients alone, nor by the medical staff dictating down to the nursing staff and patients. The psychiatric nurse is the person most directly in contact with the patients, who effects the custodial function by supervising the patients and limiting their activities, if that should be necessary. At Enfield, with a transient patient population, the nurses sustain the atmosphere into which the patient is received. Previously they took a kindly interest in the patients, but their active care was limited both by their aims and by their attitudes.

In establishing a therapeutic community, a severe problem becomes that of modifying staff attitudes, and training staff to their more active therapeutic role. Once it is demonstrated that patients are capable of exercising restraint from within their group, the attitude that all patients need external restraint (as in prisons) can be modified to one of encouraging responsibility within the group. To do this requires special staff training. Stanton and Schwartz (1954) advocate the handling of patients' problems, particularly if they are unusual, not by summary recourse to the regulations, but by individuation. Basically, all unusual requests should be granted, where this is possible. When it is impossible to do this there may be two reasons. Either the hospital's attitude is unreal and the staff should examine this attitude and attempt to modify it, or the patient's attitude is unreal and indicates the need for social therapy by the nurse, who would collaborate with the patient in an effort to help him gain a realization that it is a sick request.

The staff react against this less authoritarian way of handling the patients, and constantly resort to their previous authoritarian methods by quoting the regulations, and laying down a course of action that must be adhered to. They see the new situation as threatening their position as kindly keepers of the insane. The regulations are apparently thought of as embodying absolute standards. It will take a long time before the staff actively participates in their new role, and resistance will continue until it is demonstrated that they are less threatened by the new situation than they fear. The nursing staff must be taken into the fullest confidence of the medical staff over any changes that are to be made. The staff discussions following the 9 o'clock meetings enable individual cases to be

considered at some length, and such discussions serve not only to improve the handling of individuals, but they also act as a training ground for the staff in the more general principles on which the hospital operates. The confidence of the staff is improved when they find that they can contribute facets of observation which the doctors have not been in a position to see, and which can appreciably influence the treatment prescribed for a patient.

In the bi-weekly staff meeting the more far-reaching changes of policy are discussed. No change is introduced without the full knowledge and consent of the nursing staff. For example, the removal of wire caging around the covered ways was suggested, but several staff members objected and the proposal was therefore deferred. It is assumed that this proposal will be raised again at some future time, when the attitude to its being effected may be more favourable. These staff meetings provide valuable insights into the dynamics of the nursing staff themselves.

Nothing has been said so far about the medical staff, but it is implicit in what has been said that they provide the initiative and the guidance for the changes that are being made. It is essential that they should be clear about their long-term aims in order that the introduction of changes may be controlled and not just occur haphazardly. To do this, freedom of communication between all levels in the hospital is necessary, and this implies changes in the roles that are conventionally established.

Summary.

1. In the Enfield Receiving House the patient's day has been revised.

2. Revision has proceeded not so much by dramatically altering what is done, but rather by focusing the day on the 9 o'clock meeting, and placing expectations on all members of the hospital that are different from those to which they were accustomed.

3. The patients are given more responsibility for themselves, and the nursing staff are becoming social therapists rather than merely being custodians.

4. Although there were needs specific to the hospital, the way in which the changes were introduced has direct application to the implementing of change in other institutions.

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Reviews.

The Medical Management of Cancer. By Henry D. Diamond, M.D., F.A.C.P.; 1958. New York and London: Grune and Stratton. 8½" × 5", pp. 194, with 40 illustrations, 23 tables and 13 charts. Price: $6.75.

THIS book deals with the most recent developments in the treatment of malignant disease. The author has greatly enhanced the value of his book by recognizing the importance of the natural history of disease in determining the type of treatment to be used and in assessing the value of any given therapeutic measure. In consequence, the book is much more than a series of names and dosages. The style is austere and unattractive in parts; this is perhaps inevitable in a book which is to be judged as a ready source of purely factual data. However, the important information is so clearly presented as to be easily accessible. A useful division is made into two parts, one of which deals with diseases usually treated by non-surgical measures and the other with diseases which are primarily treated by surgery. The illustrations are clear, well chosen and well presented, while the list of references is comprehensive. A section dealing with the injection of isotopes into various body cavities is unexpectedly relegated to an appendix in small print. This constitutes one of the most useful parts of the book. The pungent style and clear presentation will make this a useful reference book for the physician and general practitioner, because in this rapidly changing field it is difficult, in a given patient, to know whether drugs are to be preferred to surgery or surgery to radiotherapy, etc. To those anxious to "brush up" their knowledge of malignant disease or to those preparing for examinations, the book offers a pithy summary of this important group of diseases.

Rehabilitation of the Cardiovascular Patient. By Paul Dudley White, M.D., Howard A. Rusk, M.D., Philip R. Lee, M.D., and Bryan Williams, M.D.; 1958. New York, Toronto, London: McGraw-Hill Book Company, Inc. 8" × 5¼", pp. 192, with 31 illustrations. Price: $7.00.

THE first large-scale rehabilitation effort was made during World War II, but when it was so successful in restoring many valuable personnel to useful activity the principle extended to the post-war years. Its potential value may be imagined when one learns that in the United States of America at least 653,000 man-years are lost each year in industry because of heart disability alone. In this book the authors use the term rehabilitation in its broad context to designate all those services which the individual with a cardio-vascular disability needs in order to live as rich, satisfying and productive a life as possible.

The first chapter describes the historical development of rehabilitation, while the second draws attention to its contemporary significance. The longest section is devoted to cerebral vascular disease. Before a programme is formulated, total evaluation of the patient is attempted. Apart from assessing his medical and neurological status, his functional capacity, his rehabilitation potential and his prognosis are carefully considered. Numerous detailed charts are an integral part of this comprehensive scheme. It is shown that to attain success it is essential to inspire the patient with hope and optimism. Social adjustment is very important, so the family must be advised to ensure cooperation. Subsequent chapters deal with cardiac disease due to rheumatic fever, congenital defects, hypertension and coronary sclerosis. It is clearly shown that every patient is an individual problem, so the programme must be adjusted to his peculiar needs. The other point brought out is that engagement in activity within their limits is the best course for cardiac patients. The prognosis for the coronary sclerotic who adopts this plan is equal to or better than that for one who stops working as soon as he knows the diagnosis.

This book preaches a very convincing gospel of activity. It emphasizes the fact that rehabilitation must include every

aspect of the individual's life and not merely physical activity. It provides a valuable detailed comprehensive scheme for bringing this about. However, this can be used to the greatest advantage only if adequate accommodation, equipment and trained personnel are available. This means a huge expenditure, but the potential recovery of manpower is so great as to make this one of our foremost national problems, and one which demands the attention of both the individual and the Government. Every physician should have this book.

Practical Pediatrics. By R. Cannon Eley, M.D., and Benjamin Kramer, M.D.; 1958. New York: Landsberger Medical Books, Inc.; distributed by The Blakiston Division of the McGraw-Hill Book Company. 8" x 5", pp. 320. Price: $7.00.

THE authors state that "The purpose of this book is to describe in simple language accepted practices and procedures in pediatrics which can be readily acquired and practised by the general practitioner and to present those aspects of pediatrics which are most likely to challenge the pædiatrician in his everyday practice". This is certainly a high aim, but can any book for the general practitioner on pædiatrics afford to omit such common disorders as the psychological and emotional problems that occur in all ages? Can respiratory tract infections be dealt with by a short chapter on staphylococcal pneumonia? Any general practitioner in this country is only too conscious of the many minor and major emotional maladjustments in infancy and childhood and also of the wide variety of acute and recurrent infections of the upper and lower respiratory tract. These are the commonest problems that he is confronted with daily, and in which he often needs advice and help.

This book has 25 chapters on diseases and different aspects of practical care. Some of the chapters, such as the ones on the premature babies, immunization procedures and pulmonary tuberculosis, are short and to the point. Others are on relatively uncommon disorders or their treatment. Why do the authors devote a whole chapter to leukæmia with detailed drug dosage, when the family doctor will rarely see a case, and, if he does, will certainly seek help in both diagnosis and management? Why give a whole chapter to fluid and electrolyte balance which is more suited to a resident medical officer in a children's hospital, and yet give no indication as to how to treat a simple case of infective diarrhœa in the home?

This book is incomplete for the family doctor and does not provide him with a balanced outlook on pædiatrics. Much of its space is devoted to problems which are the problems of the specialist, and many of the common problems with which the practitioner is confronted are completely omitted.

A Modern Practice of Obstetrics. By D. M. Stern, M.A., M.B., B.Ch., F.R.C.S., F.R.C.O.G., and C. W. F. Burnett, M.D., F.R.C.S., F.R.C.O.G., with line drawings by Susan M. Robinson, M.M.A.A.; Second Edition; 1958. London: Baillière, Tindall and Cox. 10½" x 7½", pp. 268, with 141 line drawings. Price: 45s. (English).

ALTHOUGH the authors state in their preface that the second edition of their book owes its presence to the rapidity of the growth of scientific knowledge, these advances have been somewhat sparingly dealt with. The best of such discussions is on the hypotensive drugs, while hypofibrinogenæmia, amniotic embolism and abdominal pain in pregnancy are discussed more briefly. Other changes in this edition include a complete revision of the chapter on antepartum hæmorrhage and minor alterations in other sections. There have also been alterations and additions to the figures.

The subject matter is divided into nine sections, the earlier ones covering pregnancy, labour and the puerperium. The section on operative obstetrics which then follows might well have been included with that on abnormal labour. Further sections cover the newborn, radiology in obstetrics, and maternal and infant mortality; and finally there are three welcome appendices, in which obstetrical terms are defined, their etymology is given, and ranges of normal values are tabulated for the constituents of maternal blood and liquor amnii.

The authors' personal experience is evident in discussions on cardiac disease in pregnancy, the toxæmias, hydatidiform mole and chorionepithelioma, disproportion and prolonged labour. This experience has been used, as the authors themselves stress, to avoid the repetition of unsubstantiated material from one text-book to another. The shortcomings of the book are imposed to a certain extent by its size and are correspondingly those of omission. Subjects that might have been more adequately covered include multiple pregnancy, abnormal uterine action, prolapse of the cord and rhesus incompatibility, to mention a few. The line drawings, which are used throughout, are well done, but fall short of the ideal where any detail is required as in histological plates. Despite these criticisms, the authors have succeeded well in their task of producing a sound, up-to-date and readable text.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Intracardiac Phenomena in Right and Left Heart Catheterization", by Aldo A. Luisada, M.D., and Chi Kong Liu, M.D.; 1958. New York and London: Grune and Stratton. 10" x 6½", pp. 190, with many illustrations. Price: $9.50.

This is a second edition, revised and enlarged, of a book published in 1956 under the title "Cardiac Pressures and Pulses".

"The Guinea Pig in Research: Biology—Nutrition—Physiology", by Mary Elizabeth Reid, Ph.D.; 1958. Washington: Human Factors Research Bureau, Incorporated. 9" x 6", pp. 87, with seven half-tone plates and 12 tables. Price: $2.00.

A description of the known dietary needs of the guinea-pig in quantitative terms together with a brief account of some aspects of its physiology.

"Physiology of Prematurity", Transactions of the Second Conference, March 25, 26 and 27, 1957, Princeton, N.J., edited by Jonathan T. Lanman, M.D.; 1958. New York: The Josiah Macy, Jr. Foundation. 9" x 5½", pp. 160, with 61 illustrations. Price: $3.75.

Contains papers and discussions on aerobic and anaerobic metabolism in the fœtus and the newborn and on breathing and its control in premature infants.

"Administrative Medicine", Transactions of the Fifth Conference, October 28, 29 and 30, 1956, Princeton, N.J., edited by George S. Stevenson, M.D.; 1958. New York: The Josiah Macy, Jr. Foundation. 9" x 5½", pp. 180. Price: $3.75.

Contains papers and discussions on mental health elements in administration of general health programmes, the administrative role in the management of a mental hospital and coordination of local resources ("Techniques and Devices for Communication and Cross-Fertilization").

"Directory of Services for the Aged", Melbourne, 1958. Sponsored and published by the Lions Club of Richmond, Victoria. Melbourne: Mason, Firth and McCutcheon Proprietary, Limited. 8¼" x 6½".

The result of a comprehensive survey of social service and other agencies concerned with the needs of the aged in the Melbourne area.

"The Medical Clinics of North America: Circulatory Diseases", Mayo Clinic Number, July, 1958. London, Philadelphia: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. 9" x 5½", pp. 280, with 148 illustrations. Price: £8 2s. 6d. *per annum* (cloth binding), £6 15s. *per annum* (paper).

Contains 29 articles dealing with current knowledge and views on diseases involving the cardio-vascular system.

"Anatomy and Physiology for Nurses", Third Edition, by W. Gordon Sears, M.D., M.R.C.P.; 1958. London: Edward Arnold (Publishers), Limited. 7½" x 4½", pp. 384, with 220 illustrations. Price: 12s. 6d. (English).

A completely revised edition.

"Industry and Tropical Health III", Proceedings of the Third Conference of the Industrial Council for Tropical Health, sponsored by the Harvard School of Public Health, April 16-18, 1957, in Boston. Published for the Industrial Council for Tropical Health by the Harvard School of Public Health, Boston; 1957. 10½" x 7½", pp. 264, with many illustrations. Price: $10.

The title is self-explanatory.

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BY ACCIDENT OR SAGACITY.

ALTHOUGH it is just over two centuries old, Horace Walpole's word "serendipity" is still not in the current coin of our language. We must therefore thank Clive Fitts for bringing it again to our notice in his Stawell Oration for 1958 (see page 685) and for recalling the story of the three Princes of Serendip, who "were always making discoveries, by accident or sagacity, of things which they were not in quest of". Like the man who was delighted to learn that he had been speaking prose for years without knowing it, lots of people enjoy minor experiences of serendipity without knowing that the word exists. W. B. Cannon, in a chapter on "Gains from Serendipity" in a book which is now a classic,[1] tells how he mentioned serendipity to one of his acquaintances and asked if he could guess the meaning; he suggested that it probably designated a mental state combining serenity and stupidity—"an ingenious guess", Cannon comments, "but erroneous". More recently, and with rather devastating topicality, C. H. Stuart-Harris[2] has related that he "tried out this word 'serendipity' on one of my clever young men, but he got no further than suggesting that it was a name for a new tranquilliser"—by no means a happy guess, for, as Stuart-Harris says, far from producing serenity of mind, it "has an effect better described as galvanic".

The list of significant discoveries in science and medicine which may be placed to the credit of serendipity is long. Fitts refers to a number of the more important ones, and others are recorded by Cannon, by Stuart-Harris, and by E. H. Derrick,[3] in the Bancroft Oration which he delivered in 1948. A few have resulted mainly from accident, but in most sagacity has been a vital factor. Cannon refers to Pasteur's frequently quoted words, *"Dans les champs de l'observation, le hasard ne favorise que les esprits préparés"*, and points out that, even before Pasteur, Joseph Henry, the American physicist, enunciated the same truth when he said: "The seeds of great discoveries are constantly floating around us, but they only take root in minds well prepared to receive them." Cannon himself brings fresh life to the thought in stating that "when accident favors an investigation it must be met with sharp insight". A knowledge of what has gone on in the related field in the past and avoidance of rigid adherence to fixed ideas are linked by Cannon with the "sharp insight", the "prepared mind"; and with them must go the patience, the skill and the hard work which bring the planted seed to fruit.

On the place of serendipity in clinical medicine, opinions will differ. Fitts, a clinician, sees it as important. Cannon, a physiologist and laboratory research worker, quotes practically all his examples from the field that he knows, and the same field is drawn upon by Stuart-Harris and by Derrick. This may well be a matter of selection based on interest, although there are many who look only to planned research and experiment as the source of new scientific knowledge. The question (without any reference to serendipity, as such) was fully discussed by Wilfred Trotter in an essay on "Observation and Experiment and Their Use in the Medical Sciences" first published in 1930[1] and subsequently reprinted.[2] He points out the difficulties in applying the criteria of scientific method to clinical observation and comments: "There is a certain melancholy in recognizing, as we must, that it [clinical observation] has never been, except in the hands of an occasional genius, a very effective instrument for penetrating the fundamental secrets of health and disease, and in recognizing that we now possess far more effective instruments for this purpose." He considers with great care the merits and demerits of experimental medicine and stresses its vital role in modern investigation, while urging that its highest purpose can best be served by a close contact with the realities of clinical medicine. The subject of experimental medicine is one that we may with advantage return to on another occasion. For the moment it is enough to note Trotter's agreement that clinical observation "is still a valuable method of scientific research". It is, of course, worse than useless if it is undisciplined and productive of uncertain conclusions, and frequently its greatest value is in the initial ideas which it provides as a basis for critical investigation and experiment. At no time, whether in clinical medicine, laboratory investigation or elsewhere, should the striking character of the product of serendipity make us forget the importance of related but less spectacular work. The brilliance of Gregg's observations on the effects of maternal rubella on the unborn child does not lessen the value of the contribution of Charles Swan and others to the elucidation of the subject and its practical implications. Fleming's observations of the effect of *Penicillium* were due as much to sagacity as to accident; but perhaps, as Stuart-Harris suggests, "without the genius of Florey and the chemical knowledge of Chain, penicillin would never have been purified, and thus its priceless benefit would have been withheld from mankind". There are more ways than one of recovering gold. Most of it comes from the tedious but intelligently planned crushing and extraction of the crude ore. An easier approach is the sifting of alluvial deposits, but profitable sources become well known and are soon exhausted. Nuggets are rich finds, but rare, and the seeker for nuggets is the one who should most of all beware of the glittering deceit of false gold.

[1] "The Way of an Investigator: A Scientist's Experience in Medical Research", by W. B. Cannon, 1945, Norton and Company, New York.
[2] *Lancet*, 1958, 2: 427 (August 30).
[3] M. J. AUSTRALIA, 1948, 2: 621 (November 27).

[1] *Brit. M. J.*, 1930, 2: 129 (July 26).
[2] "The Collected Papers of Wilfred Trotter, F.R.S.", 1941, Oxford University Press, London: 103.

ANOTHER MEDICAL CENTRE.

THE foundation stone of the North Shore Medical Centre, just across the Pacific Highway from the Royal North Shore Hospital of Sydney, was laid by the New South Wales Minister for Health, the Honourable W. F. Sheahan, on October 13, 1958. Although somewhat different in details of finance and management, this new centre belongs to the same pattern of medical and hospital practice as that of the Royal Prince Alfred Hospital Medical Centre, which was commended in these columns last year.[1] Most of the advantages then listed apply equally well to the new Medical Centre: saving of travelling time, with readier availability of the doctor to his hospital patients; closer contact of visiting staff with resident medical officers and students, and more time to develop that contact; greater opportunities for clinical research, especially on the part of younger consultants. The principal differences between the two centres appear to be in the way in which they are financed and managed. The Royal Prince Alfred Hospital Centre was built by the Board of Directors of the hospital, which rents the rooms to the doctors. The North Shore Medical Centre has Articles of Association similar to those applicable to "home unit" buildings, amended to suit the special requirements of the project. It began to take shape when the General Medical Superintendent of the Royal North Shore Hospital of Sydney, Dr. Wallace Freeborn, invited the builders, Civil and Civic Contractors Pty. Ltd., to submit ideas on the erection of a modern building near the hospital for the use of medical men. Finance has been made available privately for intending buyers, who will pay for their suites on a purchase plan. The building is to be seven storeys high, with provision for 54 suites; it may later be added to with extra storeys and with extensions at the rear. The benefits of such projects to doctors, hospitals and, not least, patients are unquestionable. We hope that the North Shore Medical Centre will soon be completed and functioning, and that yet other centres along similar lines will be developed in our rapidly growing Australian cities.

Current Comment.

BLANKETS AND INFECTION.

THAT hospital blankets harbour infectious micro-organisms and can spread infection has long been known. Important work was done in this field by Phyllis M. Rountree and Jean E. Armytage at the Royal Prince Alfred Hospital, Sydney, over a decade ago.[2] Since the appearance in hospitals of numerous infections by antibiotic-resistant staphylococci the problem has assumed even more serious proportions, and the relation of blankets to these infections has been considered to be important. It has been shown that normal laundering does not sterilize blankets, and that steam disinfection is effective but damages the blankets; as an alternative, various disinfectants have been recommended. There has been little direct evidence that blankets are largely responsible for the infections by staphylococci. H. Schwabacher, A. J. Salsbury and W. J. Fincham[3] report a trial of the effect of blanket disinfection on the incidence of infection. They found that the use of freshly washed blankets disinfected with quaternary ammonium compounds for each patient admitted to a test ward reduced the total bacterial count on agar plates exposed in the wards, and also decreased cross-infection. When "Terylene" blankets were used instead of woollen blankets, there was a moderate reduction in bacterial count. There were no cross-infections during the period when cotton blankets were used. After the first washing cotton blankets did not produce the fluff which, it has been claimed, is the major factor in the spread of infection. This investigation seems to have been carried out with great care.

In another article in the same number of *The Lancet*, T. A. Pressley,[4] on the basis of work at the Wool Textile Research Laboratories of the C.S.I.R.O. in Victoria, reports on the examination of the fibre content of hospital dust. This is presumably the work referred to in a statement issued recently by the Deputy Chairman of C.S.I.R.O.[5] In a special collector, dust that was light enough to be airborne was picked up. This was essentially fibrous. Bacterial examination of samples from three hospitals showed the presence of coagulase-positive *Staphylococcus aureus* in 12 of 14 samples tested. The nature of the fibres in the collected dust was determined by several methods, and in all samples the fibres were found to be predominantly cellulose. Other fibres found were wool, feather, fur, nylon and cellulose acetate; so the wool may have come from clothes. These results suggest to Pressley that cross-infection with *Staph. aureus* is primarily due to transfer of the bacteria by some agency other than fluff from woollen blankets, and that replacement of woollen blankets with those made from other textile fibres is unlikely to reduce cross-infection.

In a recent number of this Journal, V. D. Plueckhahn and Joan Banks[3] have pointed out that many things in hospital wards can be infected with staphylococci, particularly the hands of the nurses, and that unremitting care must be taken to prevent cross-infection. Blankets are not particularly mentioned. That other forms of infection than those with staphylococci can be spread in hospital wards is indicated in a paper by J. G. Bate and U. James[4] on *Salmonella typhimurium* infection dust-borne in a children's ward. They found in an infants' ward that seven outbreaks of gastro-enteritis over a period of eleven months were caused by *S. typhimurium*. The infection was not spread by human carriers. Finally the source of the organism was found in the dust-bag of the vacuum cleaner. These investigations leave the matter of the mode of cross-infection in hospital wards very uncertain, but there does not seem to be enough evidence yet to justify the wholesale replacement of woollen blankets by cotton blankets.

SOLAR CARCINOGENESIS.

IN a morphological study of skin cancer in humans, B. S. Mackie and V. J. McGovern[5] have come to the conclusion that the effect of ultra-violet light in the production of skin cancer is mediated through its effect upon the dermis. They point out that the condition known as "senile elastosis" occurs even in teenaged persons if they are fair-skinned and exposed to excessive amounts of solar radiation. However, elastosis is only a stage in the process of connective tissue degeneration, and the ultimate appearance of solar degeneration of the skin is often scarcely distinguishable from the atrophy due to ionizing radiation.

In advanced stages of collagen degeneration due to ultra-violet light, the overlying epidermis is atrophic, fibroblasts resemble those seen in radiodermatitis, and the production of fibrils in the dermis ceases. The change in dermal collagen begins around the subpapillary plexus of vessels, and Mackie and McGovern consider that vascular changes are produced which have a profound effect upon nutrition of the dermis and secondarily upon the epidermis. They suggest that the epithelium-stimulating effect of

[1] M. J. AUSTRALIA, 1957, 2:95 (July 20).
[2] M. J. AUSTRALIA, 1946, 1:503 (April 13); 1947, 1:427 (April 5).
[3] *Lancet*, 1958, 2:709 (October 4).
[4] *Lancet*, 1958, 2:712 (October 4).
[5] M. J. AUSTRALIA, 1958, 2:609 (November 1).
[6] M. J. AUSTRALIA, 1958, 1:664 (May 17).
[7] *Lancet*, 1958, 713 (October 4).
[8] *Arch. Dermat.*, 1958, 78:218 (August).

mild chronic dermatitis causes dyskeratotic hyperplasia in the presence of solar degeneration of the dermis. Thus, solar keratoses are formed. Hair follicles and sweat ducts draw their nutrition largely from deeper zones in the dermis, and this is thought to explain their exemption from the dyskeratotic change. Because of some unknown factor an occasional solar keratosis proceeds to malignancy. In Australia, this small percentage makes up a large figure. It is known that protection is often followed by the disappearance of the keratosis, although the underlying solar degeneration is likely to be unaffected.

In keratoacanthoma, according to Mackie and McGovern, the same factors enter the picture; but here the inflammation is more acute and may follow trauma or infection. The combination of inflammation with mild collagen degeneration can produce the characteristic pseudo-epitheliomatous lesion; but when the inflammation subsides, the stimulus to hyperplasia fails, and the lesion regresses.

As for basal-cell carcinoma, the parts played by ultraviolet and solar degeneration of the dermis are more complex. These tumours are regarded as falling into four groups: those elicited by the presence of solar degeneration of the dermis; those in which a nævoid tendency is accelerated by the presence of collagen degeneration; those in which there is no associated collagen degeneration, but solar exposure seems, on clinical grounds, to have played a part; and finally, the small group occurring on covered parts of the body and due to some purely endogenous factor.

The final conclusion of Mackie and McGovern is that in persons with inadequate cutaneous pigment, excessive solar radiation causes a degeneration in the dermis which profoundly affects the nutrition of the epidermis and thereby predisposes it to the development of carcinoma. Similar conclusions based upon experimental studies in carcinogenesis were arrived at by R. E. Billingham, J. W. Orr and D. L. Woodhouse,[1] who found that grafting untreated epithelium on to the dermis of previously treated skin resulted in tumour formation, whereas treated epithelium did not produce tumours when grafted on to untreated dermis.

STUDIES OF CARCINOID DISEASE.

AN interesting survey of carcinoid disease has recently been presented by Ake H. Thorson.[2] The first part is a review of the literature and deals with the nature of carcinoid tumours, the metabolism of 5-hydroxytryptamine and its relationship to the tumour. The second part deals with clinical considerations of 50 carcinoid tumours of the small intestine and 52 of the appendix diagnosed in the departments of pathology at Lund and Malmo. Appendiceal tumours seemed to develop earlier than those of the small intestine and produced earlier symptoms, which were not always due to obstructive appendicitis. No case of appendiceal carcinoid in this series produced symptoms, although patchy pigmentation in some cases was thought to be possibly due to disturbed 5-hydroxytryptamine metabolism. Symptoms and signs of the carcinoid syndrome occurred in 10 of the 50 small bowel cases. In some, large masses of tumour draining into the caval system were quite devoid of symptoms that could be ascribed to 5-hydroxytryptamine. The operative mortality in the small bowel group was 20% and was associated with intestinal obstruction. Thorson recommends that surgery should always be attempted, for survival free of symptoms for several years followed even incomplete removal of the tumour mass.

In the third part of the monograph Thorson deals with 12 personally observed cases of the carcinoid syndrome; in 11 of these the primary tumour was in the small intestine, while in one it occurred in an ovarian teratoma. In the fourth part an analysis is made of the clinical and pathological features of the 12 cases together with 67 examples from the literature. Vascular phenomena, hyperperistalsis, asthma, œdema, cardiac disease, abnormal pigmentation, mental disorders and the less common arthralgia and œdema are fully described. Thorson concluded that death was attributable in the majority of cases to the metabolic effects of the metastatic tumour, and of these he regards cardiac lesions as the most prominent fatal complication in the collected series.

There is a separate section dealing with the cardiac lesions observed at autopsy in 46 collected cases, and the various theories of pathogenesis are discussed. Thorson favours the view that 5-hydroxytryptamine, by reason of its histamine-liberating activity, in some way causes the lesions. As would be expected from a member of Professor Waldenström's team, this is a comprehensive and authoritative monograph. It should be welcomed by all who are interested in this fascinating subject.

[1] *Brit. J. Cancer*, 1951, 5: 417 (December).

[2] "The Studies on Carcinoid Disease", by Ake H. Thorson, *Acta Medica Scandinavica*, Supplementum 334, accompanies Volume 161; 1958. 9¼" × 6¼", pp. 132, with illustrations.

RENAL CIRCULATION IN ACUTE RENAL FAILURE.

IN a small monograph of about 50 pages Ole Munck[1] has critically examined in detail the published results of studies of blood flow through the kidney during acute anuric or oliguric renal failure. He is well qualified to do this, having collaborated with Brun and other Danish workers in making significant contributions to our knowledge of these problems. First of all he describes the methods which have been used for measuring blood flow, oxygen consumption and interstitial pressure in the kidney, discussing their relative merits and accuracy, and then he gives the findings in acute renal failure. The conclusion is that interstitial pressure is normal, but blood flow is reduced, though not so drastically as some workers have suggested, and not so much as to account for the oliguria. There must be some perversion of tubular reabsorption as well, which leads to an interesting suggestion that the reduction in both oxygen consumption and blood flow is the result, not the cause, of inactivity of damaged tubular cells. The principal problem, why so little urine is produced, remains unsolved. Nevertheless, specialists in this rather narrow field of physiology and medicine will enjoy reading this review of the situation as it stands today.

[1] "Renal Circulation in Acute Renal Failure", by Ole Munck, M.D.; 1958. Oxford: Blackwell Scientific Publications. 9" × 5½", pp. 54. Price: 12s. 6d. (English).

CHANGES IN NATIONAL HEALTH ACT.

THE Minister for Health has written to the Federal Council of the British Medical Association expressing the hope that members of the Association will be able to cooperate in publicizing the amendment recently made to the *National Health Act*. The relevant part of the letter is as follows:

> I refer to the amendment recently made to the *National Health Act* to enable medical and hospital fund benefits to be paid in cases where claims in the past have been disallowed because of fund rules relating to pre-existing ailments, chronic illness and maximum benefits.
>
> It is obviously desirable to have information circulated as widely as possible regarding this important extension of the National Health Scheme. To this end, information pamphlets have been printed explaining the essential features of the medical and hospital insurance schemes including the recent amendment.
>
> The Department is seeking the co-operation of doctors in distributing these pamphlets by placing them in their waiting rooms or other suitable places so that interested persons may be able to take one. The co-operation of the profession in this way will be an effective means of providing people with necessary information regarding their entitlements under the National Health Scheme.

These pamphlets will be distributed to members of the profession in the near future.

Abstracts from Medical Literature.

SURGERY.

Cavernous Hæmangioma of the Liver.

J. L. OCHSNER AND B. HALPERT (*Surgery*, April, 1958) found that the frequency of cavernous hæmangiomata of the liver was over 2% in 2400 autopsies. They state that these hæmangiomata are in fact tissue malformations, vascular hamartomata. They were more often single than multiple, and were more often near the surface than deep in the parenchyma. The authors consider that these lesions have no growth potential and are prone to undergo retrogressive changes. These vascular hamartomata have been mistaken at operation for infarcts, nodular hyperplasia, hydatid cysts and metastatic cancer. It has been suggested that all nodules encountered at operation should be examined by biopsy, and hæmangiomata of the liver have been diagnosed by percutaneous needle-biopsy without incident. However, the authors consider that there is a real possibility of fatal hæmorrhage from such lesions when located on the surface of the liver. They state that when the surgeon is confronted at operation with one of these vascular lesions, sectioning or aspiration should not be attempted unless the surgeon is ready to resect the mass, as considerable hæmorrhage may ensue.

Strictures of the Common Duct.

W. H. COLE (*Surgery*, February, 1958), discussing strictures of the common bile duct, states that from an experience of about 130 cases of common bile duct stricture he considers that operative trauma to the common duct is the cause in fully 75% of cases of stricture. If the injury is recognized at the time of the initial operation, the repair should be carried out at that time, in which case the results are usually good. If the damage is not recognized at the time of the initial operation (usually cholecystectomy) but evidence of interruption of the normal biliary flow into the duodenum is manifested some two or three days after operation, he considers that immediate operation is then indicated. When the obstruction develops insidiously, any significant evidence of common duct obstruction should be an indication for operation. When the repair of a stricture has already been carried out and an occasional attack of pain with jaundice and a chill develops, these attacks usually recur and will require operation. The author is convinced that the status of liver function is of prime importance in determining the need for operation. If the liver becomes enlarged and if the liver function tests reveal hepatic insufficiency, then operation is indicated. He states that when hepatic fibrosis and, perhaps, portal hypertension develop, the liver damage becomes irreversible and the patient will die in spite of successful repair, if delayed too long. Whenever possible, end-to-end anastomosis is the operation of choice, the anastomosis being supported by a T-tube prosthesis usually brought out through the distal portion of the duct through a separate opening. If the arm of the T-tube is brought out through the anastomosis, the stricture redevelops. If this manœuvre is impossible, then an anastomosis of the proximal end of the duct to the jejunum, Rous-Y fashion, is performed. When the intrahepatic ducts cannot be found, on five occasions the author has found the intrahepatic cholangio-jejunostomy procedure of Longmire to be useful. Although he had good results in only two of the five cases in which this was attempted, all five cases would have had to be considered hopeless without it.

Reconstruction of the Œsophagus.

N. S. BRAUNWALD AND C. A. HUFNAGEL (*Surgery*, April, 1958) describe a method of œsophageal reconstruction consisting of the placement of a wire screen round a "Tygon" tube, which they employed in 16 dogs. They found this to be technically easy to perform. As a result of the post-operative progress of these dogs, they consider that this method shows promise of decreasing the incidence of stricture and post-operative anastomotic leakage.

F. A. ROGERS (*Am. J. Surg.*, July, 1958) describes a case of œsophageal carcinoma treated by palliative resection and replacement of a portion of thoracic œsophagus by an arterial homograft. This method of œsophageal resection presents an easy and reasonable palliative procedure. Preserved human aortic segments give an adequate lumen, and early sealing at the anastomotic sites is believed to occur. The use of gastrostomy feedings in the immediate post-operative period is advantageous while fibrotic healing of the anastomoses is occurring. Since there is a natural tendency for stenosis to occur at the suture lines, normal swallowing should be resumed as soon as a reasonable time has elapsed for sealing of the anastomoses. A careful single layer anastomosis allows for minimal concentric narrowing of the œsophageal lumen. An effort should be made even in palliative resection to resect beyond areas of intramural carcinomatous extension. Further clinical use of aortic homografts for œsophageal replacement after palliative resection seems worthwhile.

Extraserous Drainage in Subphrenic Abscesses.

A. OCHSNER (*Surgery*, February, 1958) discusses the importance of extraserous drainage in subphrenic abscesses. He points out that all intraperitoneal residual infections, including subphrenic abscess, are much less common now than before the advent of the antibiotics. However, when they do occur they usually run a much more bizarre course and there is frequently difficulty in making a diagnosis because of the masking of the symptoms as a result of antibiotic therapy. Subphrenic abscesses have always been difficult to diagnose because of their anatomical position, and they are now even more difficult because of the attenuation of the organisms by the antibiotics. However, once the diagnosis is established, drainage is imperative, and Ochsner considers that it is still desirable that this drainage should not be through the serous membrane of the peritoneal cavity if at all possible. He still advises the retroperitoneal operation, which drains satisfactorily both suprahepatic and infrahepatic subphrenic spaces without contamination either of an uninvolved portion of the peritoneal cavity or of the pleural cavity. He considers it essential not to contaminate uninvolved serous spaces even though antibiotics can be administered, because the microorganisms present within the abscess may have become resistant to antibiotics and may even be actually more virulent than as if the antibiotics had never been used. Ochsner concludes by stating that a subphrenic abscess is still a dangerous condition, especially if surgery is delayed.

A Complication of Lateral Intestinal Anastomosis.

L. POLLOCK (*Arch. Surg.*, April, 1958) discusses blind-pouch formation after lateral anastomosis of the intestine. He points out that a blind pouch may develop in the closed end of the proximal segment after side-to-side anastomosis. This enlarged sac is not necessarily dependent upon leaving a long, blind end projecting beyond the stoma; an end no longer than an inch may develop into a large diverticulum. The usual symptoms are abdominal cramps, borborygmi, distension, vomiting, diarrhœa and anæmia. A palpable mass may be present. On the other hand the only symptoms may be massive intestinal hæmorrhage or abscess formation. X-ray studies may disclose a large gas bubble on the plain film. Barium X-ray studies may disclose retained barium in the diverticulum. The treatment is resection of the blind pouch. The author considers that this is an argument for end-to-end intestinal anastomosis as opposed to lateral anastomosis. He concludes by stating that when a patient has abdominal complaints and is known to have had an intestinal anastomosis, the surgeon must suspect that the patient has had a lateral anastomosis followed by the development of a blind pouch.

Cancer of the Stomach.

R. N. LEHMANN *et alii* (*Arch. Surg.*, May, 1958) compare the results of treatment in patients with gastric carcinoma treated in three widely different types of institutions in Detroit, namely a government institution (Veterans Administration Hospital), a city institution and a private hospital. Two of the hospitals both had the same resident consulting staff, and the principles of cancer surgery in both were similar, as was the general operating technique. From a total of 637 patients, the authors show that the results in carcinoma of the stomach are not as discouraging as some reports would indicate. They found an over-all absolute five-year survival rate of 9% with a 21% five-year survival rate among those undergoing resection without any hope of cure. The number of patients with resection for cure who were living and well without any evidence of recurrence for five years was excellent in the Veterans Administration Hospital being 43%, but very poor in the city

institution, where it was only 3%, with the private hospital occupying an intermediate position with 21%. A difference in the condition of the patient and the extent of his disease was largely responsible for the difference in survival rates at these three hospitals. The authors suggest that these same differences may account for many of the variations in other reported series rather than differences in operations, technique or ability of the surgeon.

Phlegmasia Cœrulea Dolens.

E. J. GILES (*Am. J. Surg.*, March, 1958) reports a case of phlegmasia cœrulea dolens and reviews the literature. The condition is a form of thrombophlebitis of the lower limb in which there is fulminating venous thrombosis accompanied by marked reflex arterial spasm and varying degrees of shock. Arterial spasm is extreme and a diagnosis of embolism is frequently made. In 50% of cases the condition progresses to gangrene, necessitating amputation, and in one-third it is fatal. The onset of the condition is more sudden and the symptoms are more severe than in phlegmasia alba dolens. The distinguishing features are a violaceous discoloration of the skin of the affected extremity, diminished or absent arterial pulsations, temperature and sensory alterations, and œdema of the leg, thigh and lower part of the trunk. It is difficult to select the best treatment because good results are recorded with both operative and conservative measures. The author stresses the need for early recognition of the condition and advises ligation in continuity of the vena cava, lumbar sympathectomy, anticoagulants, antibiotics and moderate elevation of the limb. Compression bandages should be used when the patient is allowed out of bed. Blood replacement is essential to prevent death from circulatory collapse. Ligation of the inferior vena cava is done primarily to prevent pulmonary embolism, as in most cases the thrombus extends well into the common iliac vein and there is no inflammatory element. Vena caval ligation combined with sympathectomy in the author's patient produced a dramatic result and led to an increase in leg temperature and relief of vasospasm. The cyanosis disappeared rapidly and his general condition improved remarkably. The patient's condition was satisfactory 12 months later.

Late Results of Using Tantalum Gauze.

H. DALES AND J. KYLE (*Surgery*, February, 1958) report the late results of repairing 40 large hernias with tantalum gauze. They state that in inguinal hernias tantalum gauze implants have given results at least equal to those obtained by other methods currently used in repairing hernias of comparable size. They found that the gauze inlay technique was unsatisfactory in the repair of large incisional and paraumbilical hernias, having a recurrence rate of some 50% in their series. They found that fatigue fractures develop in all gauze implants within three years, although the majority of the repairs remain clinically sound, showing that the radiological appearance of the implant is no guide to the final clinical results of the hernial repair. They found that fragmentation can be of practical importance, as in the upper part of the abdomen pieces of tantalum may penetrate into the peritoneal cavity and into the wall of the small intestine. However, in the inguinal region fragmentation caused no ill effects, and by using tantalum gauze in the repair of large inguinal hernias it was unnecessary to make relaxation incisions or perform muscle slides in an abdominal wall already shown to be defective.

Prognosis in Carcinoma of the Oral Cavity.

S. L. PERZIK *et alii* (*Arch. Surg.*, May, 1958) discuss the cure rate in carcinoma of the oral cavity on the basis of a study of 679 cases over a 15 year period. At the Los Angeles County Hospital, they state that the over-all cure rate was 11%. This low figure was the result of a poor selection of material; 32% of the cases under review were so far advanced that only palliative treatment was possible. If these cases were excluded, the five-year cure rate rose to 17%. A study of carcinoma of the tongue, including floor-of-the-mouth cancers, revealed an over-all five-year cure rate of 13%, which rose to 22% when the inoperable cases were eliminated. When the variable factors involved in carcinoma of the tongue were analysed, they found that the best results were obtained in white women over 50 years of age, with only a primary lesion, under three centimetres in diameter, in the anterior two-thirds of the tongue, which was treated by a combination of surgery with elective neck dissection and irradiation. The authors consider that surgery and irradiation are indispensable in the management of cancer of the oral cavity, and that they are not competitive.

Thyroid Cancer Biology.

J. A. BUCKWALTER *et alii* (*Arch. Surg.*, May, 1958) discuss the biology of thyroid carcinoma with reference to the observed course of the disease in 176 patients. They classify the lesions histologically as follicular, papillary and undifferentiated carcinomata. Survivorship curves show that about 10% of the patients with follicular and papillary lesions die within the first year after diagnosis, as compared with 60% of patients with poorly differentiated carcinomata.

Biliary Dyskinesia in T-Tube Cholangiography.

J. HODGE, C. BARRICK AND E. MCLAUGHLIN (*Arch. Surg.*, March, 1958) discuss biliary dyskinesia in T-tube cholangiography. The authors consider that one factor contributing to biliary dyskinesia is what they term the chemical factor. They found that a radio-opaque medium called "Medopaque-H", which is a clear, aqueous, stable, radio-opaque medium containing sodium o-iodohippurate in a 10% solution of sodium iodide with polyethylene glycol, which they utilized in T-tube cholangiography following cholecystectomy and choledochostomy, caused biliary dyskinesia. Of 36 patients who had T-tube cholangiograms with this material, 10 developed biliary dyskinesia, and they report seven of these cases in detail. Five of the seven had evidence of acute pancreatitis. They think, too, that in two of their cases there was an association between this chemical cholangitis and possible calculus of the common bile duct.

Acute Pneumocholecystitis.

J. RABINOVITCH *et alii* (*Arch. Surg.*, April, 1958) discuss two cases of acute pneumocholecystitis associated with perforation of the gall-bladder and pneumoperitoneum. In one case the offending organism was *Clostridium perfringens* and in the other an anaerobic Gram-positive colon bacillus. The authors state that acute pneumocholecystitis with perforation of the gall-bladder is a very rare occurrence. The important factors in its pathogenesis are complete blockage of the cystic duct and the presence of gas-forming bacteria in the gall-bladder at the time of obstruction. The authors point out that in this disease early diagnosis is vital, because any delay in diagnosis is followed by death of the patient. Whereas in acute cholecystitis there may be difference of opinion as to whether conservative or operative treatment should be advised, in acute pneumocholecystitis there can be no difference of opinion. When the patient is seen early and his general condition warrants it, cholecystectomy should be performed, but in later cases it may be necessary to confine interference to drainage of the gall-bladder and peritoneum.

Multicentric Carcinomata of the Oral Cavity.

C. G. MOERTEL AND E. L. FOSS (*Surg., Gynec. & Obst.*, June, 1958) state that the concept of epithelial carcinoma originating from a single minute focus at a single instant in time has been seriously challenged in recent years. Many of the basic observations underlying the concept of multicentric origin of epithelial malignancy have been made in the study of carcinoma of the oral cavity. Of 732 patients with proved oral cancer seen at the Mayo Clinic during the ten-year period from 1944 to 1953, a total of 64 were found to have two or more discrete oral cancers. Associated leucoplakia was found in 75% of the patients with multiple oral lesions. An overwhelming majority of the patients were users of tobacco, particularly in the forms which expose the mouth to tobacco juices. The tendency to multicentricity shown by patients with oral cancer also extends to involve the contiguous squamous epithelium of the lips, pharynx, larynx and œsophagus. Fifty-five patients with oral carcinoma were found to have additional primary lesions in these locations, thus raising the over-all occurrence rate of multicentricity to 16·4%. When oral cancer develops, all of the contiguous squamous mucous membrane must be considered as highly susceptible to future malignant change. It is the responsibility of the physician to insist on frequent and regular follow-up examinations so that any second lesion may be detected and treated in its early stages. It is also his responsibility to initiate appropriate prophylactic measures to eliminate any possible sources of carcinogenic irritation to these regions.

Medical Societies.

PÆDIATRIC SOCIETY OF VICTORIA.

A MEETING of the Pædiatric Society of Victoria was held on May 14, 1958, at the Royal Children's Hospital, Melbourne.

Viral Infections in the Newborn.

DR. A. WILLIAMS read a paper entitled "Viral Infections in the Newborn". He said that his own interest in neonatal viral infections had been aroused with the isolation of herpes simplex virus from a newborn baby who had died with lesions in the liver, adrenals and œsophagus. That interest had been stimulated when a Coxsackie virus was isolated from a baby with myocarditis. The pattern of infection in those neonates appeared to be very different from the lesions normally produced by those viruses. Dr. Williams then outlined the clinical course and pathological lesions found in fatal herpes simplex infection of the newborn infant. He said that a baby, usually born prematurely, developed a transient rash on the fifth or sixth day of life. Fever and listlessness were noted, possibly with splenic and hepatic enlargement. About the ninth or tenth day of life the infant's condition deteriorated rapidly. Obvious hepatic enlargement might then be present, and the baby died. At necropsy one found ulceration of the œsophagus, hepatic necrosis and adrenal necrosis. Adjacent to the areas of hepatic necrosis, giant multinucleated cells were found. In the nuclei of the liver cells in the area, inclusions varying in appearance but typical of the cycle shown by herpes simplex were seen. The virus could be recovered from the blood, and from many of the viscera. Herpes simplex infection in the neonate followed the lines of experimental ectromelia in the mouse, as demonstrated by Professor Frank Fenner; common virus infections in children, including the exanthemata, also followed that pattern.

Dr. Williams then presented a composite history of four cases of neonatal herpes simplex infection which had been diagnosed at the Royal Children's Hospital. He said that on the day of birth, either inoculation with virus occurred by inhalation of infective material from an herpetic lesion of the maternal genital tract, or, as was well demonstrated in one of the cases, the virus was acquired from an attendant with an herpetic lesion. On the fifth day or thereabouts a fleeting rash was noted. On the ninth or tenth day death occurred, and at necropsy adrenal and hepatic necrosis was found. In ectromelia, death of the mouse might occur on the eighth or ninth day from hepatic necrosis. If the animal did not die, a severe skin rash developed, which was obviously healing after about a fortnight.

Dr. Williams then discussed the ætiology of the condition. He said that there were four possible sources of infection. (i) Primary genital herpes of the mother was an obvious source of infection. The virus was inoculated in the pharynx or less commonly in the eyes. (ii) Transplacental transmission was suggested by the case of a full-term baby delivered by Cæsarean section, who died at the age of seven days. (iii) Vaccination of the newborn had been suggested by one recorded case in which herpes simplex was donated as well as cowpox. (iv) Medical or nursing attendants could pass virus to the newborn, and an herpetic lesion had been present on the face of a nurse who had "sucked out" one of the babies. However, McNair Scott and others had demonstrated that virus could be present in the saliva without there being any lesions in the mouth.

In most cases the affected infants had been premature, but the infection could also occur in full-term infants. The great majority of affected babies were female. It was uncertain whether a break in the epithelium was necessary for infection to occur. The majority of the babies had severe œsophagitis with ulceration, suggesting that the upper part of the alimentary tract was the site of inoculation. Œsophageal ulceration was not uncommon in newborn babies—in fact, it was extremely common if they had been gavage fed. But even without the passage of a tube, œsophageal ulceration might be present.

The absence of a history of maternal herpetic infection and the absence of complement-fixing antibodies indicated that the infection usually occurred in the baby born without the protection of maternal antibodies. That it might occur even in the presence of transplacentally transmitted antibodies was suggested by cases recorded by Pugh, Newus and Dudgeon, and also by Zuelzer. Thus one could regard the condition as a primary infection with herpes simplex virus occurring in a susceptible animal, the infection following the path indicated, and death occurring on the ninth or tenth day after inoculation.

Dr. Williams then compared this infection with the more common varieties of primary herpes infection in infancy. He said that in primary gingivo-stomatitis, infection usually occurred, as Anderson had demonstrated, in the period of mouth and gum activity—namely, the end of the first year and the second year. Although it had not been conclusively demonstrated that an epithelial break was necessary for infection, McNair Scott had stated that if infection occurred before the eruption of the teeth, then no gum lesions were seen.

Anderson and Hamilton, in their study of the spread of herpes in a nursery, showed that antibodies transmitted from the mother could be demonstrated in the infant's serum till the age of six months. However, the infants rarely became infected before the age of eleven months. They had wondered if there was an intrinsic resistance of the tissues to infection before the age of 12 months. However, the neonatal infection which he had been discussing indicated that their alternative explanation was correct—namely, that protection of the baby by maternal antibody still existed, although it was not serologically demonstrable.

In primary gingivo-stomatitis, viræmia had not been demonstrated; but the pattern of ectromelia suggested that it would occur early in the disease, before the mouth lesions were causing much trouble, since they would not be obvious till about the seventh day. If viræmia occurred, visceral lesions possibly always occurred, but rarely caused symptoms or signs. That they did occur and sometimes caused death was illustrated by three infants whose histories had been related by Zuelzer—infants with primary herpetic gingivo-stomatitis who died at the ages of 18, 22 and three months respectively with œsophageal, liver and adrenal necrosis.

The other common form of primary herpetic infection in infancy was eczema herpeticum, the common type of Kaposi's varicelliform infection. An infant with infantile eczema became infected with herpes simplex. A group of vesicles developed on an area of eczema, and they were followed a couple of days later by further groups. That infection usually terminated favourably in a matter of about ten days. Not infrequently there was a history of contact with a person with an herpetic lesion. Intra-hospital spread might rapidly occur, involving other patients with infantile eczema, as recorded by Sims and French, and even nurses might contract herpetic lesions, as in a small epidemic in a ward at the Hospital for Sick Children, Great Ormond Street. A study of those hospital infections indicated that the incubation period was probably about seven days—corresponding once more with Fenner's mouse-pox pattern. The further spread of the rash over the next few days suggested the probability of viræmia. The virus had been isolated from the blood on a few occasions only. Dr. Williams said that as fatal cases occurred more commonly in infants with Kaposi's varicelliform eruption than in infants with primary mouth lesions, necropsy findings were more readily available, and one would expect to find visceral lesions occasionally. He had not, however, been able to find detailed post-mortem records of many cases, although in one infant with eczema herpeticum who died at Great Ormond Street, patches of adrenal necrosis had been found identical with those he had described in the newborn. In the only case studied at the Royal Children's Hospital, visceral lesions had not been obvious macroscopically; but minute areas of liver necrosis had been present and inclusion bodies could be seen; the skin and œsophagus showed typical herpetic lesions.

Dr. Williams went on to say that although primary infections with herpes simplex in infancy followed a common pattern—in fact, a pattern common to many virus infections—there was a vast difference in the prognosis of the infant with those three conditions, depending on the degree of damage which occurred in the affected viscera. He wondered why a gross degree of liver necrosis occurred in the newborn and so little in an older infant. The dose of virus received could be the deciding factor, but that did not appear likely. Because all were primary infections, preformed antibodies could not be the reason. Antibody would be formed as a result of the infection from about the seventh or eighth day. He doubted if that could prevent death from hepatic necrosis on the ninth or tenth day. The only other factor which he could imagine as being significant was some unknown property of the tissues, a property which changed with age.

Some viruses which usually caused disease of relatively minor significance in the older infant could cause necrosis

of large areas of tissue in the newborn. A particularly good example was the Coxsackie group of viruses. Herpangina, Bornholm disease, and even aseptic meningitis were relatively minor complaints when compared with the myocarditis caused by Coxsackie group B virus in the newborn. In the newborn, muscle necrosis was extensive, and that was one reason why he believed that there was a different ætiology for other forms of myocarditis of infancy, in which the cellular infiltration rather than the myocardial damage was the predominant feature. Coxsackie group B virus could cause fatal myocarditis in a newborn cynomolgous monkey, but not in a six months old monkey, although viræmia did occur in the latter. Apart from the extensive tissue necrosis in the newborn, other histological features of the tissue reaction to virus infection were similar in all age groups.

MR. I. JACK said that Dr. Williams had rightly emphasized that the source of the virus in neonatal herpes simplex infections was the mother or an attendant. The virus could be harboured without there being any lesion in the mouth or elsewhere. That fact, however, was not a sufficient argument to refrain from excluding known carriers of the virus from contact with the newborn. Maternal antibody did protect the infant, but there was a wide range in the antibody levels found, and some mothers had very low levels. It was possible that in some neonatal infections there was sufficient maternal antibody to prevent death, but not enough to prevent hepatitis. In herpetic stomatitis it was not known whether viræmia occurred, but Zuelzer's case suggested that it did. In eczema herpeticum the virus had recently been isolated from the adrenal gland.

DR. S. WILLIAMS asked whether there was any hope that a herpes simplex vaccine might be prepared, and whether gamma globulin would be worth giving to exposed infants who were premature or who were suffering from eczema.

DR. H. WETTENHALL suggested that differences in hormonal activity might account for the different clinical patterns in the newborn and the older child.

DR. R. KELLY said that eight patients with eczema herpeticum had been seen in the preceding 20 months. Two of those patients had been given cortisone, with equivocal results. The disease was usually due to primary infection with herpes simplex, but a milder recurrent infection was also noted in older children.

DR. R. SOUTHBY questioned whether obstetricians were sufficiently aware of the danger of herpes simplex to the newborn.

DR. J. COLEBATCH said that in the age group two to four weeks sudden death was less common, but encephalitis was more common. Transplacental infection did occur, as was shown by the case of a baby who developed symptoms on the third day of life; the baby's mother had developed herpes on the second post-partum day, never having had it before. Genital herpes in the mother was apparently not a common source of infection. In 20 cases he had analysed, maternal genital herpes had been present in only three. With regard to gamma globulin, Dr. Colebatch said that it had been given to Zuelzer's patient, but the baby had nevertheless died. He thought cortisone should be given to the newborn with the infection, as the high eosinophil count and large thymus found in the newborn indicated a low natural level of cortisone activity.

Dr. Williams, in reply, reemphasized that persons suffering from herpes simplex should be rigidly excluded from contact with the newborn.

A Study of Peritonitis Complicating Appendicitis.

MR. R. FOWLER presented a preliminary report on a study of the prevention and treatment of the infective complications of appendicitis; the study was still continuing. Fifty-eight patients with appendicitis and peritonitis had been admitted to the Royal Children's Hospital in 1950-1951, and had been given penicillin and streptomycin for at least one week post-operatively. In those children there had been 25 complications of wound sepsis, an incidence of nearly one in two; there had been in addition 18 complications of intraperitoneal sepsis (mostly pelvic abscesses), an incidence of virtually one in three. By contrast, a series of 100 children with appendicitis and peritonitis admitted to the hospital from 1956 to 1957 and treated as a routine with tetracycline for at least the first week post-operatively, had a complication rate of wound sepsis of only one in five, and of intraperitoneal sepsis of only one in 11. That appeared to indicate a striking superiority of tetracycline over the combination of penicillin and streptomycin in the treatment of such patients.

Peripheral Blood Films in Septicæmia.

DR. B. WADHAM discussed the place of peripheral blood film examination in the direct diagnosis of septicæmia, and gave details of several cases in which accurate diagnosis had been quickly achieved by that technique.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

ARRANGEMENTS FOR PROCURING COWPOX IN VICTORIA.[1]

[From the *Australasian Medical Gazette*, October, 1881.]

THE Central Board of Health of Victoria have been in correspondence with 15 of the largest stock owners in the colony without as yet meeting with a true case of cowpox. Several herds have also been inspected by Dr. Youl without finding any animal affected. It is anticipated that no case of natural cowpox will be met with until the Spring of the Year, when it will be looked for among heifers with their first calves. Under these circumstances the Board propose at once to inoculate certain cows with lymph which has been collected by the most skilful and cautious of the public vaccinators, and arrangements have been made to conduct the experiments at the police paddock at Dandenong.

Correspondence.

GOLD SALTS: A WARNING.

SIR: May I, through your Journal, give a warning to those who use injections of gold salts for osteoarthritis. I would like to point out that they are of no use whatever in the condition, are not without their risk and are costly. Used in their proper place—i.e., for the treatment of rheumatoid arthritis—they are a valuable agent, but should be given in the correct dosage and the patient carefully watched for any adverse effects.

Yours, etc.,

PRO BONO.

Sydney,
November 4, 1958.

THE MANAGEMENT OF OSTEOARTHRITIS OF THE HIP.

SIR: I would like to take this opportunity of disputing some of the views on the management of osteoarthritis of the hip joint put forward by Mr. Peter Williams (M. J. AUSTRALIA, August 30, 1958) and most of those expressed by Dr. Wedlick and Dr. May (M. J. AUSTRALIA, October 4, 1958). The results of operating on osteoarthritic hips are on the whole satisfactory, while conservative management gives at the best temporary relief only. Conservative management is therefore contraindicated if the patient is fit to be operated on and has a reasonable expectation of life. Conservative management does the patient a disservice, because it is likely to postpone operation, so that it is done under less favourable conditions of increased joint deformity, muscle wasting, especially of the abductors, shortening of the adductors and flexors, and increasing age. The late Dr. Smith-Petersen was emphatic in his opposition to conservative treatment, because it put off a useful operation. The Smith-Petersen mould arthroplasty relieves pain, which is usually all the patient demands, and at the same time preserves useful movement. In bilateral cases the patient who has had one hip operated upon is only too eager to have the same pro-

[1] From the original in the Mitchell Library, Sydney.

cedure carried out on the opposite side. If anything goes wrong with a mould arthroplasty, the way out is relatively easy. The arthroplasty can be done again, a prosthesis can be inserted if the femoral head and neck are atrophic, or the joint can be arthrodesed.

Arthroplasty with the Austin Moore or similar prosthesis also gives satisfactory results, and has the advantage of separating the acetabulum and femoral neck by a wider margin of metal, preventing the reformation of a short, tight capsule and the impingement of osteophytes; but it has the disadvantage of removing the femoral head and part of the neck, so that in the event of failure the joint is more difficult to arthrodese.

The Judet operation is faulty in principle, and has not fulfilled the hopes anticipated, and though it has undergone several modifications, most orthopædic surgeons have abandoned it.

Osteotomy is occasionally indicated, particularly in cases with extreme deformity, coxa vara, and adduction with reasonable movement in the adducted position. It gives about five years' relief of pain, and subsequent arthroplasty is made easier. The McMurray and Schanz osteotomies are crude and mutilating methods of producing abduction and extension, and should be regarded as obsolete. A subtrochanteric abduction osteotomy with nail and plate gives at least equal results, and tends to restore normal anatomy, so that subsequent arthroplasty is greatly facilitated, and convalescence is short.

Arthrodesis certainly and finally relieves pain in the hip joint, but it is final in every other way. It often transfers pain from the hip to a spondylitic lumbar spine. No doubt it gives good immediate results in young patients; but young patients with mobile lumbar spines subsequently grow old, if they do not in the meantime break their necks attempting to drive cars so seriously handicapped.

However, most of the patients who require hip operations are cranky old women of both sexes, with arthritic changes in the lumbar spine and elsewhere. The convalescence is longer, and if a long nail alone is relied upon to maintain position, these hips often end up arthrodesed in faulty position; the victim can neither sit nor stand properly, and requires a built-up boot, and becomes so fed up that he refuses further surgery and becomes a chronic invalid. The main indication for arthrodesis is a failed arthroplasty, and the main causes of unsatisfactory arthroplasties are technical defects and non-cooperation of the patient in the after-treatment. Obese patients often fail to obtain satisfactory movement after arthroplasty and may be better served by arthrodesis. It is important, therefore, that each case should be assessed on its merits, and treatment planned accordingly, reserving conservative management for those in which operation is contraindicated by poor physical or mental condition.

Yours, etc.,

2 Collins Street,
Melbourne,
October 28, 1958.

F. STONHAM.

THE ASTHMATIC CHILD.

SIR: Congratulations to Dr. D. G. Hamilton for his excellent paper on the asthmatic child. It is not only a fine instance of that sonorous phrase, psychosomatic medicine, but also a splendid example of the paramount importance of the doctor-patient relationship. It shows the great value of general practice experience, as contrasted with the hospital hot-house atmosphere in which so many of our modern specialists are brought up. Dr. Hamilton's experience in both fields has enabled him to strike a true balance between the two.

In his discussion about clothing, Dr. Hamilton advises against the woollen singlet in summer. This prompts one to ask why a singlet of any kind is necessary. Surely a light cotton shirt is enough! The usual argument in favour of a singlet is that it absorbs perspiration. So it does, and soon you have a wet singlet and a wet shirt to contend with.

While on the subject of clothing, why are woollen socks worn almost universally by children and adults, even in the hottest weather? Alternatively now we have the stretch socks, nylon with some wool. The same argument as with the singlet is advanced here—they take up perspiration. On the other hand, do they not make feet sweat? And having done so, do they not provide an ideally warm, moist condition for skin maceration and infection? Our womenfolk wear no wool on their legs or feet, whereas the "hardy" male wears long pants (mostly woollen) down to his feet and generally has woollen socks, sometimes even over long underwear!

And do our shops help? They do not! See how often you can spot lisle (cotton) or artificial silk socks in Sydney shop displays. If you ask for them, you are told there is no demand. The reason is, of course, that they do not feature them.

Yours, etc.,

25 Billyard Avenue,
Elizabeth Bay,
N.S.W.
November 2, 1958.

A. W. BULTEAU.

NOMENCLATURE IN ANÆSTHESIA.

SIR: The primitive Leclanche cell consisted of a carbon and a zinc electrode immersed in a solution of ammonium chloride. When the external circuit was completed, chlorine ions were liberated at the zinc electrode and the ammonium ion at the carbon. The NH_4 immediately dissociated into NH_3, which dissolved, and free hydrogen, which clung to the carbon electrode, thus reducing its effective surface and current flow. This effect was called ionization, and to prevent it a paste of manganese dioxide was placed around the carbon electrode and oxidized the nascent hydrogen to water. This paste was called a depolarizer.

With the development of muscle relaxants in anæsthesia, it was found that the "Tubarine" acted on the myo-neural junction and inhibited the passage of the nervous impulse, thus reducing normal muscular tone bringing about relaxation. If the analogy with physics is to be maintained, then curare is to be called a polarizing agent, and its antagonist neostigmine a depolarizing agent. There exists another group of muscle relaxants whose pharmacology is similar to the curare group, but differs from it by not being antagonized by neostigmine. These are called depolarizing agents, and belong to the methonium group.

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Yours, etc.,

133 Newcastle Street,
East Maitland,
N.S.W.
November 7, 1958.

C. J. B. ARMSTRONG.

Obituary.

ALAN PERCIVAL CHERRY.

WE are indebted to Dr. A. R. Magarey for the following account of the career of the late Dr. Alan Percival Cherry.

On the evening of Thursday, September 11, 1958, Dr. Alan Cherry, on his way home, stopped to give aid to an accident victim lying on the road. While giving this aid, he was run down by a passing motorist, and died a short while later—another tragedy on our roads and an awful warning to the medical profession.

Alan Percival Cherry was born on May 17, 1917, the second son of Mrs. Cherry and the late Dr. P. T. S. Cherry. He was educated at St. Peter's College, Adelaide, starting there in 1925, at which time he was the youngest boy in the school. He passed his intermediate examination in 1930, took his leaving certificate in 1931 and then spent four years in the leaving honours, gaining a medical bursary in 1934 and topping the State in mathematics. He was appointed captain of the school in 1935, and played in the inter-collegiate football, tennis and athletic teams. He was one of the first to achieve the rank of cadet lieutenant in the newly formed School Cadet Cadre.

He began his medical course at the University of Adelaide in 1936 and obtained credits in first and second years. Notwithstanding his busy university life that year, he enlisted in the 10th Battalion A.M.F. (Adelaide Rifles) as a private infanteer and rose to commissioned rank in 1938. In 1939 he won the Alan Lendon Scholarship which took him to St. Mark's [illegible]iversity College for the remaining three years of

his course, and also, in 1939, he was elected President of the Men's University Union.

He graduated M.B., B.S. in November, 1941, and immediately volunteered for the A.I.F., was accepted, and posted as a resident medical officer to the Royal Adelaide Hospital. On April 18, 1942, he married Jocelyn Britten, second daughter of Lady Hilda Britten Jones and the late Sir Edmund Britten Jones. He was called up for active service shortly afterwards and posted to a motor regiment, subsequently serving in New Guinea in 2/9 A.G.H., the 2/5 Field Regiment, and was R.M.O. to the 2/16 Battalion in the landing at Balik Papan. He was discharged from the army in April, 1946, did a refresher course at the Royal Adelaide Hospital, and then joined Dr. J. Covernton at Gawler for twelve months as an assistant. In 1947 he began practice

at Largs Bay, joining his father and elder brother, Dr. Edward Cherry. This practice covers a wide area from Woodville, through Port Adelaide, to Largs Bay and beyond, and, at the time of his death, had expanded to a group practice of five members. Alan did his full share of work in this extremely busy area, yet found time to be a lecturer to the Port Adelaide branch of the St. John Ambulance Brigade and medical officer to the Port Adelaide Casualty Hospital. He became a member of Royal Adelaide Golf Club in 1949, and, by assiduous practice, whittled his handicap down to 11, no mean feat for so busy a man. In 1953 he went to England and did a post-graduate course at the Radcliffe Infirmary, Oxford, for six months, after which he was joined by his wife, and they toured the United Kingdom and the Continent.

Dr. Cherry achieved his outstanding results, in both work and sport, by sheer determination and hard work. This capacity for diligent and incessant application to the job in hand did not affect his sympathetic human approach, and his already large circle of friends and acquaintances was forever increasing under the stimulus of his vital personality. His passing has appalled us and the manner of it has greatly disturbed very many people. He is survived by his wife and four children, Janet (thirteen years), David (eleven years), Pamela (nine years) and Alison (three years).

Alan was my friend, we had worked and played together all our lives, and I am still shocked and bewildered by his death. To his wife and four lovely children I extend my deepest sympathy—and, heartbreaking as it is, I can see his example in fortitude already bearing fruit among them.

HUBERT BALDWIN GILL.

WE are indebted to Dr. Adrian Farmer for the following account of the career of the late Dr. Hubert Baldwin Gill.

In the first half of this century Western Australia has been most fortunate in possessing three very distinguished surgeons who devoted their talents to the specialty of oto-rhino-laryngology. The first of these was Frank Andrew, who later moved to Melbourne, where he immediately became a leader in his specialty and remained so until his early death. He was followed by his disciple and great admirer, Herbert Gray, who continued on where Andrew left off until his death two years ago. In 1920 Baldwin Gill returned to Perth from London, where he had gone after his war service in Palestine to study further this specialty, and began his long and valued service to the profession and the community generally, which only culminated in his death last week at the age of 76 years. Gray and Gill worked alongside each other during their long careers, and were very firm friends, each with a great regard of the one for the other.

Baldwin Gill was born in Manchester, but came to Australia at the age of four years. His father, who was an engineer by profession, went to Melbourne, where he was in part responsible for the installation of Melbourne's cable trams. Gill was educated at Carlton College in Parkville and later at Melbourne Church of England Grammar School. There he had a distinguished scholastic career, being *dux* of the school in his final year. This year of 1900 was a memorable one for Melbourne Grammar School, as the captain of the school was Stanley Melbourne Bruce, and at the annual speech night the Duke of York, later King George V, presented Gill with his prize as *dux* of the school. A Clark foundation scholarship took him to Trinity College in 1901, where as was associated with many well-known names during his five years in college. Amongst them were the first and second Victorian Rhodes scholars, J. C. V. Behan in 1904 and Harvey Sutton in 1905. Also Mark Gardner, Balcombe Quick, Douglas McWhae, Maurice Herring, Herbert Mayo, O. De Crespigny, A. E. Morris, W. Crowther, Clive Shields, Teddy White, W. E. Wilmot, Allan Leeper, Bob Fowler, Harry Cordner and Wally Summons.

Gill qualified in 1906, but immediately joined his family, who by then were in Western Australia. In 1909 he established a practice at Subiaco, which was later taken over by his brother Frank, when Hubert went overseas with the 1st Light Horse Regiment to serve in Palestine until the Turkish surrender. In Subiaco he worked in conjunction with his lifelong friend Theodore Ambrose, who practised near by.

Gill was honorary E.N.T. surgeon to the Children's (now the Princess Margaret) Hospital from 1914 to 1945, and it was there that he did the work for which he is mostly remembered, particularly bronchoscopy for the removal of foreign bodies from the lung and the surgery of suppurative conditions of the middle ear in children. In pursuance of his interest in bronchoscopy he twice visited Chevalier Jackson in Philadelphia, and became most proficient in extracting various forms of foreign bodies, of which there seemed to be a relatively large number in Perth in the twenties and thirties. During that same period suppurative mastoiditis was also common, particularly during a rather protracted measles epidemic in 1929. It is interesting to recall the varying phases in the treatment of mastoiditis during this period. In the early twenties it was drainage at the first sign of œdema and tenderness over the process. Consequently intracranial complications were very frequent, and was it any wonder? Not until nearly a decade later was it realized that it was unwise to open the mastoid until pus was well established and X-ray evidence showed disintegration of the cellular trabeculæ. It was Gray and Donald Smith who first produced a series of X rays exemplifying this phenomenon, which they jointly presented to the Australasian Medical Congress at Sydney in 1929. Behind the clinical aspects of that epic paper were hours of observation by both Gill and Gray at the Children's Hospital, and though Gill's name did not appear at the time, it was partly his observations which formed the basis of this paper.

Gill was elected a Foundation Fellow of the Royal Australasian College of Surgeons in 1927, and was a member of the State Council until his retirement in 1945. He was also a visiting E.N.T. surgeon to the Repatriation Commission

cedure carried out on the opposite side. If anything goes wrong with a mould arthroplasty, the way out is relatively easy. The arthroplasty can be done again, a prosthesis can be inserted if the femoral head and neck are atrophic, or the joint can be arthrodesed.

Arthroplasty with the Austin Moore or similar prosthesis also gives satisfactory results, and has the advantage of separating the acetabulum and femoral neck by a wider margin of metal, preventing the reformation of a short, tight capsule and the impingement of osteophytes; but it has the disadvantage of removing the femoral head and part of the neck, so that in the event of failure the joint is more difficult to arthrodese.

The Judet operation is faulty in principle, and has not fulfilled the hopes anticipated, and though it has undergone several modifications, most orthopædic surgeons have abandoned it.

Osteotomy is occasionally indicated, particularly in cases with extreme deformity, coxa vara, and adduction with reasonable movement in the adducted position. It gives about five years' relief of pain, and subsequent arthroplasty is made easier. The McMurray and Schanz osteotomies are crude and mutilating methods of producing abduction and extension, and should be regarded as obsolete. A subtrochanteric abduction osteotomy with nail and plate gives at least equal results, and tends to restore normal anatomy, so that subsequent arthroplasty is greatly facilitated, and convalescence is short.

Arthrodesis certainly and finally relieves pain in the hip joint, but it is final in every other way. It often transfers pain from the hip to a spondylitic lumbar spine. No doubt it gives good immediate results in young patients; but young patients with mobile lumbar spines subsequently grow old, if they do not in the meantime break their necks attempting to drive cars so seriously handicapped.

However, most of the patients who require hip operations are cranky old women of both sexes, with arthritic changes in the lumbar spine and elsewhere. The convalescence is longer, and if a long nail alone is relied upon to maintain position, these hips often end up arthrodesed in faulty position; the victim can neither sit nor stand properly, and requires a built-up boot, and becomes so fed up that he refuses further surgery and becomes a chronic invalid. The main indication for arthrodesis is a failed arthroplasty, and the main causes of unsatisfactory arthroplasties are technical defects and non-cooperation of the patient in the after-treatment. Obese patients often fail to obtain satisfactory movement after arthroplasty and may be better served by arthrodesis. It is important, therefore, that each case should be assessed on its merits, and treatment planned accordingly, reserving conservative management for those in which operation is contraindicated by poor physical or mental condition.

Yours, etc.,

2 Collins Street,
Melbourne,
October 28, 1958.

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While on the subject of clothing, why are woollen socks worn almost universally by children and adults, even in the hottest weather? Alternatively now we have the stretch socks, nylon with some wool. The same argument as with the singlet is advanced here—they take up perspiration. On the other hand, do they not make feet sweat? And having done so, do they not provide an ideally warm, moist condition for skin maceration and infection? Our womenfolk wear no wool on their legs or feet, whereas the "hardy" male wears long pants (mostly woollen) down to his feet and generally has woollen socks, sometimes even over long underwear!

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Gill was elected a Foundation Fellow of the Royal Australasian College of Surgeons in 1927, and was a member of the State Council until his retirement in 1945. He was also a visiting E.N.T. surgeon to the Repatriation Commission

from 1920 until 1956. During the second World War he served as a visiting E.N.T. surgeon to the 110th Australian General Hospital at Claremont and later Hollywood. He was a member of the Council of the Western Australian Branch of the B.M.A. from 1929 until 1935 and President of the Branch in 1931.

Outside his professional activities his main interest was in Freemasonry. He was a member of the St. George's Lodge, where he was a practising Freemason from 1912 until his death. In 1949 he had the rank of Past Senior Grand Warden conferred upon him in recognition of his valuable services to his own lodge and the craft in general. He was also a member of the Council of the Church of England

Schools. At that time this council controlled all the church boys' and girls' public and secondary schools, and this was a most time-consuming post for one as conscientious as he.

My own association with Gill began in 1920 when I was a resident at the Children's Hospital. He made a point of teaching his residents the importance of a basic knowledge of "E.N.T.", how to read and manage an inflamed tympanic membrane, the importance of sinusitis in relation to general infection, and how to guillotine a tonsil. Incidentally, Gill was a master of the guillotine technique, and it was only in the latter years of his practice that he abandoned this instrument in favour of dissection. When I entered general practice in partnership with his brother at Subiaco, Gill invited me to join his hospital clinic, where I assisted him for several years and was able to watch his every move and be guided by his sound advice and judgement. All through my career I always felt that he was at my elbow, ever ready to guide me in the early stages, and one to whom I could always take my problems, knowing that he would have a helpful solution.

He was indeed the beloved physician, a lovable and selfless man of impeccable ethics, and as a result of these traits naturally was held in the highest esteem by all sections of the community. This was shown at his funeral service where many fine tributes were paid to his memory. His attention to patients was renowned. He would always visit his operation and sick patients at the end of a busy day. Secondary hæmorrhages were much more common then, and if he was anxious about such he would stay at the bedside until completely satisfied that it was under control, even if it meant spending the night at a hospital.

When in England in 1912 Gill met and became engaged to Miss Meta Statham, who came to Perth to marry him in 1915, and so began their long and happy life together, interrupted only by his years on active service during the first World War. He is survived by his widow and two sons, one of whom is in practice in Perth.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, changes, etc., are published in the *Commonwealth of Australia Gazette*, No. 52, of September 12, 1958.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Fixing Rates of Pay.—Surgeon Lieutenant (for Short Service) Ian Ivor Maynard MacGregor is to be paid the rates of pay and allowances prescribed for Surgeon Lieutenant-Commander, whilst acting in that rank, dated 14th March, 1958.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Appointment.—Henry Andrew Luke is appointed Surgeon Lieutenant, dated 1st July, 1958.

Termination of Appointments.—The appointments of the following are terminated: Surgeon Lieutenant John Morton Copeland, dated 30th June, 1958; Surgeon Lieutenant Hugh Ben Craig Houston, dated 24th July, 1958; Surgeon Lieutenant Rodney Gordon White, dated 31st July, 1958.

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps (Medical).

The Short Service Commission granted to 3/12026 Captain H. J. Hodgson is extended until 7th August, 1958.

3/12027 Captain A. Robertson is transferred to the Reserve of Officers (Royal Australian Army Medical Corps) (Medical) (Southern Command), 30th July, 1958.

3/12026 Captain H. J. Hodgson is transferred to the Reserve of Officers (Royal Australian Army Medical Corps) (Medical) (Central Command), 8th August, 1958.

Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—The provisional appointment of 1/39198 Captain H. A. Urquhart is terminated, 21st July, 1958. To be Captain (provisionally), 22nd July, 1958: 1/39198 Hugh Alexander Urquhart.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—The provisional appointment of 6/15413 Captain W. H. Patterson is terminated, 15th October, 1957. To be Captains (provisionally): 6/15413 William Hugh Patterson, 16th October, 1957, and 2/127902 Kevin Patrick Connors, 13th August, 1958. 2/146614 Captain K. F. Hume is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Eastern Command), 8th August, 1958.

Southern Command.

Royal Australian Army Medical Corps (Medical).—3/101027 Captain (provisionally) D. G. Macleish relinquishes the provisional rank of Captain, 5th October, 1957, is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Southern Command) and is granted the honorary rank of Captain, 6th October, 1957. The provisional appointment of 3/129385 Captain M. G. Whiteside is terminated, 26th January, 1958. To be Captain (provisionally), 27th January, 1958: 3/129385 Maxwell George Whiteside.

Central Command.

Royal Australian Army Medical Corps (Medical).—2/127017 Honorary Captain W. C. Woods is appointed from the Reserve of Officers and to be Captain (provisionally), 30th July, 1958.

Western Command.

Royal Australian Army Medical Corps (Medical).—To be Captain (provisionally), 13th August, 1958: F5/1220 Elizabeth Janet Gunn.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

Northern Command.—To be Honorary Captain, 13th August, 1958: Daniel Gerard Lane.

The following officers are placed upon the Retired List (Eastern Command), with permission to retain their rank and wear the prescribed uniform, 30th September, 1958: Lieutenant-Colonels (Honorary Colonel) J. S. Crakanthorp and A. W. Morrow, D.S.O., E.D., Lieutenant-Colonels I. A. Brodziak and D. O. Brown and Captain A. R. Edwards.

The following officer is retired:

Southern Command.—Honorary Captain G. M. Stubbs, 31st July, 1958.

Notes and News.

Standard for Cyanides Used in Agriculture.

The Standards Association of Australia announces the issue for public review and comment of a draft Australian Standard for Cyanides used as Agricultural Pest Destroyers (Document 400). This draft deals with cyanide preparations for use in the protection of agricultural and horticultural crops and as pest destroyers. It refers specifically to sodium cyanide, calcium cyanide fumigant, cyanide fumigant mixtures for rabbit destruction, and stabilized hydrocyanic acid.

In view of the hazardous nature of this material specific instructions on sampling are given as well as an appendix on the treatment of cyanide poisoning. Methods of analysis are given.

Copies of Document 400 may be obtained from the headquarters of the Association, 157 Gloucester Street, Sydney, and from branch offices in capital cities and at Newcastle. Comment is specially invited from suppliers and purchasers of these materials, and should be sent to the Association not later than January 31, 1959.

American College of Chest Physicians: Prize Essay Contest.

The American College of Chest Physicians is offering three cash awards to winners of the 1959 prize essay contest. The first prize is $500, the second prize is $300 and the third prize is $200. Each winner will also receive a certificate. The contest is open to undergraduate medical students throughout the world. Essays may be written on any phase of the diagnosis and treatment of chest diseases, cardiovascular or pulmonary. Further particulars relating to the contest, which closes on April 15, 1959, may be obtained from the American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois, U.S.A.

Genetics and Cancer.

The thirteenth annual symposium on fundamental cancer research will be held on February 26, 27 and 28, 1959, at the University of Texas M. D. Anderson Hospital and Tumor Institute. Further information about the symposium may be obtained from the Editorial Office, the University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, Texas.

Royal Australasian College of Surgeons.

OPEN MEETING.

A CLINICAL MEETING of the Royal Australasian College of Surgeons will be held at Royal Prince Alfred Hospital, Sydney, on November 26, 1958, at 8 p.m. The programme is as follows: Mr. N. Wyndham, "Stricture of Common Bile Duct"; Professor J. Loewenthal and Mr. B. Morgan, (i) "Iliac Thrombosis and Arterectomy", (ii) "Bypass Operation"; Mr E. Gibson, "Malignant Granuloma of the Nose"; Mr. J.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED NOVEMBER 1, 1958.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	4(3)	5(1)	..	..	..	..	..	9
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	..	..	1	..	..	..	..	..	1
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	1	..	..	2	..	..	3
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	1	13(9)	6(5)	..	..	3	6	..	29
Diphtheria	..	..	..	..	..	..	..	..	..
Dysentery (Bacillary)	..	..	..	..	3(3)	..	..	..	3
Encephalitis	1(1)	1	..	..	..	..	..	..	2
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	1	..	..	..	1
Infective Hepatitis	74(27)	22(8)	11(4)	3(1)	8	..	1	1	120
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	5	..	5
Leptospirosis	..	..	1	..	..	..	..	..	1
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	..	..	..	..	..	..	..	..	..
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	1(1)	..	..	..	..	..	..	1
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	2(1)	6(6)	..	..	..	..	..	..	8
Puerperal Fever	1(1)	1(1)	3(2)	..	..	..	..	..	5
Rubella	..	44(33)	..	2(2)	116(113)	..	..	12	174
Salmonella Infection	..	..	..	..	1(1)	..	1	..	2
Scarlet Fever	12(7)	14(13)	1(1)	3(3)	4(4)	2(1)	..	1	37
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	..	..	..
Trachoma	..	..	..	..	3	..	1	..	4
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	34(15)	11(7)	15(10)	4(2)	11	4(1)	4	1	84
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	1(1)	..	..	..	1
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

Goldie, "Ruptured Splenic Arterial Aneurysm"; Mr. A. Johnson and Mr. P. Tomlinson, (i) "Biliary Fistula following Trauma to Common Duct: Unusual Sequel", (ii) "Jejunostomy Preliminary to Resection of Carcinoma of Œsophagus"; Mr. P. Tomlinson, "One Stage Proctocolectomy for Acute Ulcerative Colitis with Hæmorrhage"; Mr. E. V. Barling, "Ureteric Replacement by Small Intestine".

All medical practitioners are invited to attend.

Notice.

THE OTO-LARYNGOLOGICAL SOCIETY OF AUSTRALIA (B.M.A.).

New South Wales Section.

A CLINICAL MEETING of the New South Wales Section of the Oto-Laryngological Society of Australia (B.M.A.) will be held on Tuesday, November 25, 1958, at 8 p.m. in the Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital, Sydney. Members of the Ear, Nose and Throat Department of the hospital will present cases. All medical practitioners and senior students are invited to be present.

THE CHILDREN'S MEDICAL RESEARCH FOUNDATION OF N.S.W.

THE following is a list of donations to the Children's Medical Research Foundation of N.S.W. received from members of the medical profession in the period October 30 to November 4, 1958:

Dr. W. Ramsay Beavis: £26 5s.

Dr. W. A. Leventhal, Dr. J. B. Dowe: £15 15s.

Dr. N. M. Kater, Dr. Short: £10 10s.

Dr. R. J. Erby (third donation): £10 0s. 6d.

Dr. and Mrs. T. Whiting, Dr. P. Vernon Dixon: £5 5s.

Dr. R. L. Harris: £5.

Dr. R. C. Bedingfeld: £3 3s.

Previously acknowledged: £7259 8s. 3d. Total received to date: £7366 16s. 9d.

Corrigendum.

OUR attention has been drawn to an error in the footnote to the review of the British Pharmacopœia, 1958, which appeared in the issue of September 6, 1958, at page 336. The number of pages is shown as 140. This should be 1040. We regret this error.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Thompson, Graham Stuart, M.B., B.S., 1957 (Univ. Sydney), 31 Abbotsford Parade, Abbotsford.

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Mitchell, Noel John, M.B., B.S., 1956 (Univ. Adelaide), 3 Wattlebury Road, Lower Mitcham.

Hetzel, Peter Stuart, M.B., B.S., 1948 (Univ. Adelaide), M.D., M.Sc. (Med.), Minnesota, M.R.C.P., London, 163 North Terrace, Adelaide.

Deaths.

THE following deaths have been announced:

WIDDUP.—Alec Harley Widdup, on October 6, 1958, at Raymond Terrace, New South Wales.

SHEPPARD.—Edmund MacArthur Sheppard, on October 8, 1958, at Sydney.

KERR.—Annie Robertson Kerr, on October 26, 1958, at Edgecliff, New South Wales.

TALLENT.—Gordon Murray Tallent, on November 3, 1958, at Melbourne.

AIRD.—Ivie Aird, on November 5, 1958, at South Coogee, New South Wales.

KAUFMANN.—Ernst Norbert Kaufmann, on November 6, 1958, at Potts Point, New South Wales.

HENDERSON.—David Smith Henderson, on November 6, 1958, at Hobart.

Diary for the Month.

Nov. 25.—New South Wales Branch, B.M.A.: Hospitals Committee.
Nov. 26.—Victorian Branch, B.M.A.: Council Meeting.
Nov. 27.—New South Wales Branch, B.M.A.: Branch Meeting.
Nov. 27.—South Australian Branch, B.M.A.: Scientific Meeting.
Nov. 28.—Queensland Branch, B.M.A.: Council Meeting.
Dec. 2.—New South Wales Branch, B.M.A.: Organization and Science Committee, 8 p.m. (with Special Groups, 8.30 p.m.).

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales. The Maitland Hospital.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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